RA® Automotive Products

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DiagRA® D

Diagnostics Software Tools for Cars, Motorcycles, Trucks and Buses

Features:

- OBD Scan-Tool, workshop tester and advanced developer functions
- Supports various diagnostic protocols on K-Line, CAN, CAN-FD, FlexRay and DoIP
- ODX support, standard versions 2.0.1, 2.1.0 and 2.2.0
- OBDII, EOBD, HD-OBD and WWH-OBD Scan-Tool in compliance with SAE J1979, SAE J1939 as well as ISO 27145
- Convenient functions to save data and to record values
- Access to the ECU's internal memory e.g. RAM cells, IUMPR values, freeze frames, etc.
- XML output of data for further processing
- Optional plug-ins for flash programming and remote control functions
- Automation via ASAP-3, DDE and Web Services interfaces
- Raw diagnostic messages of any protocol can be transmitted and received
- Communication monitor and ability to send custom diagnostic service requests

Benefits:

- High-level ECU diagnostics for developers
- ECU communication with low hardware requirements
- Simple, intuitive handling, easy to use
- 100% compliant to international automotive standards and regulations
- Extensive context sensitive help
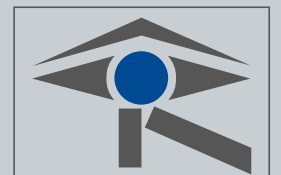
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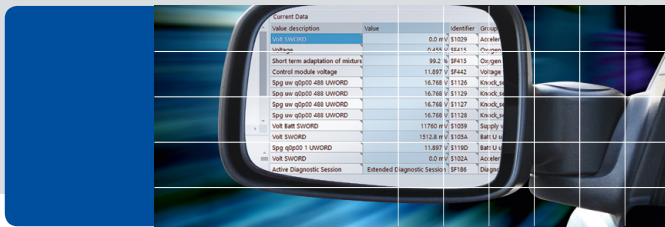
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RA CONSULTING

DiaGRA® D

Diagnostics with DiaGRA® D

DiaGRA® D is used worldwide by all major international automotive OEMs and 1st tier suppliers as a powerful diagnostics tool throughout all development stages. The functionality can be extended by adding optional plugins. The tool functions can be subdivided into three basic sections:

1. OEM specific workshop tester diagnostics
2. Scan-Tool for OBDII/EOBD/HD-OBD/WWH-OBD diagnostics
3. Advanced developer functions

The workshop tester diagnostics function is a customer-specific part of the program, which is adapted to different vehicle manufacturers. DiaGRA® D can be used for all ECUs inside the vehicle.

The scan tool function is implemented in compliance with SAE J1979 (OBDII/EOBD), SAE J1939 (HD-OBD) and ISO 27145 (WWHOBD). After the automatic configuration the supported data of all OBD relevant ECUs is displayed. The SAE J1979 scan tool function supports all 10 services (Service $01 – Service $0A) as well as all the sub-functions (PIDs) defined by the market's relevant legislations.

The SAE J1939 scan tool function supports all required diagnostic messages and parameter groups. WWH-OBD (World Wide Harmonized Onboard Diagnostics) is also included according to ISO 27145 as part of this functional group and is complete for the required diagnostic services including all DIDs.

The advanced developer functions are designed for automotive development engineers. By loading an A2L file the tool is able to read out and display (depending on type of the fault memory manager):
- the internal fault memory in full
- RAM cells (calibration labels)
- IUMPR values
- status bits, cycle counters
- readiness

Further program functions:

- Automatic and manual measurements with adjustable parameters
- Storage of data in different formats e.g. TXT, XML and Excel compatible CSV files for recordings
- Automation options via DDE, ASAP-3 interfaces and the optional Web Services plug-in (in accordance to ASAM HIL API definitions) to connect to a test bench or simulator
- An ISO 13209 (OTX) extension for DiaGRA D WebServices is available in emotive's Open Test Framework OTX authoring tool.
- Display and transmission of raw CAN messages, described in DBC and UEF files
- Flexible import module for ODX project description files with automatic placement into a project hierarchy. Supports ODX standard versions 2.0.1, 2.1.0 and 2.2.0.
- Communication monitor with message filter and function to manually create and transmit diagnostic service requests based on ISO 14229, ISO 14230 or SAE J1979
- An implemented test cycle assistant allows driving, following standard (e.g. FTP75, NEFZ, WLTC) or self-defined driving cycles with use of selectable reference values acquired from the ECU (e.g. speed, rpm).
- Measurement values can be recorded and saved to several

formats (e.g. CSV and MDF4) for use in other applications.
- Another data storage option allows the user to read the data from the complete OBD system in full and to save them to TXT and XML files. XML files can be converted to PDF, HTML and Excel files.
- Available in German, English, French, Polish, Spanish, Italian, Czech, Russian, Chinese, Korean and Hungarian languages

Technical Data:

- DiaGRA® D for Windows 7/10 (32-bit and 64-bit version)
- Support of various diagnostic protocols on K-Line, CAN, CAN-FD, FlexRay and Ethernet, e.g. ISO 14230 KWP2000, ISO 15765, ISO 14229 (UDS), ISO 13400 (DoIP), SAE J1850 as well as GMLAN
- Support of multiple communication hardware interfaces:
  - multi-bus interface devices from many 3rd party manufacturers
  - PassThru devices according to SAE J2534 (v0202 and v0404)
  - Devices according to RP1210 API for SAE J1939 protocol
  - Support of interfaces with D-PDU-API based on ISO 22900-2

OBD compliance test cases for cars and trucks:

- DiaGRA® D runs the following Compliance Test Cases:

- SAE J1699-3 OBDII Compliance Test Cases
- SAE J1939-84 OBD Communications Compliance Test Cases for heavy-duty components and vehicles

Based on an open source (GPL) DOS tool we offer a Windows interface for the test sequences of the SAE J1699-3 OBDII Compliance Test Cases within DiaGRA® D and the Silver Scan-Tool™, to perform SAE J1699-3 examinations.

The SAE J1699-3 expansion module is available free as an additional function in accordance with the regulations for the use of Open Source Software. Based on this, we cannot guarantee the long-term availability of this function. We will however maintain and adapt this module as long as is economically justifiable and technologically meaningful.

RA® offers it's own tool to execute the SAE J1939-84 OBD Communications Compliance Test Cases for Heavy-Duty Components and Vehicles. It is delivered with the DiaGRA® D and Silver Scan-Tool™ and is currently used by many truck and truck engine manufacturers. We will maintain the tool following the latest official SAE documents as long as this is economically and technically reasonable.

DiaGRA® D Web Services

To remote control DiaGRA® D via Web Services. Allows the communication between a client application and DiaGRA® D as the server application. The Web Services are implemented as an API for SOAP.

DiaGRA® D Flash-Plugin

Option for flash programming using KWP2000 (K-Line, CAN TP2.0 and ISO-CAN), UDS (ISO-CAN) and UDS (FlexRay). SGM, SGO, ODX containers and HEX/S19/BIN/MOT files can be used as the data source. Partial flash programming and flash programming via DDE and Web services remote control is possible.

DiaGRA® Offline

Post-transformation of logfiles from data loggers, DiaGRA® D and Silver Scan-Tool™ into the DiaGRA® D XML output format.

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