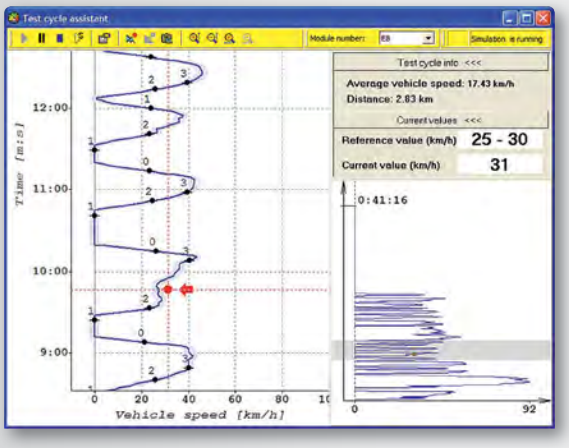
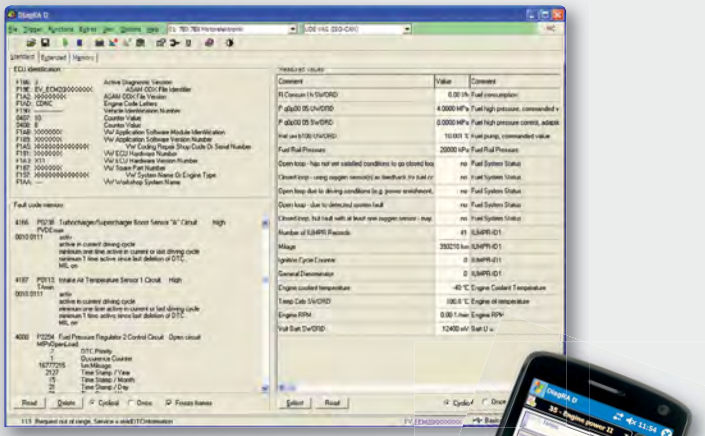
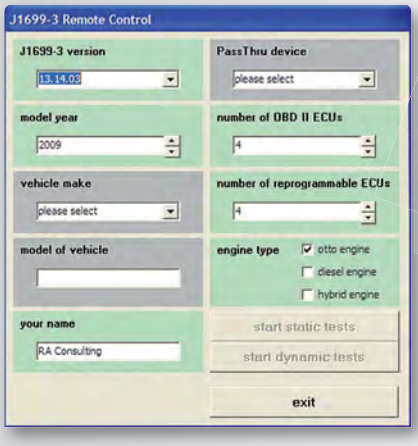
DiagRA D

Diagnostics option from the DiagRA MCD Toolset







Features:

- Scan-Tool, workshop tester and advanced developer functions
- K-Line, CAN and FlexRay
- Support of all common diagnostic protocols
- ODX support
- OBDII/EOBD/HD-OBD Scan-Tool in compliance with SAE J1979 and SAE J1939
- ISO 27145 WWH-OBD (World Wide Harmonized - Onboard Diagnostics) supported
- Convenient functions to save data and to record values
- XML output of data for further processing
- Optional plug-in for flash programming
- Automation via ASAP-3, DDE and Web services interfaces
- Measurement value output via D/A converter RAdio
- Raw CAN messages can be read and transmitted

Benefits:

- Clear ECU diagnostics for developers
- ECU communication without complex hardware requirements
- Simple, intuitive handling
- Extensive context sensitive help
- Interaction with DiagRA M and DiagRA C for measurement and calibration

DiagRA MCD Toolset

The DiagRA MCD Toolset is an applications and diagnostics tool-box for electronic control units in the automotive industry. It consists of the three integrated options: DiagRA M, DiagRA C and DiagRA D. Each option can also be run separately.

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Diagnostics with DiagRA D

The diagnostics option from DiagRA MCD Toolset

DiagRA D is used by more than 8000 users world wide as a complete, intuitive to operate and particularly clear diagnostics tool. RA Consulting's previous tool, **DiagRA**, has been integrated into the **DiagRA MCD Toolset** by means of extended functionality and features that are necessary for interoperation with **DiagRA M** (measurement option) and **DiagRA C** (calibration option).

The functional range can be subdivided into three basic sections:

1. Workshop diagnostics
2. Scan-Tool for OBDII/EOBD/HD-OBD diagnostics
3. advanced developer functions

The workshop diagnostics function is a customer-specific part of the program, which is adapted for different vehicle manufacturers. The-functionality can be used for all ECUs inside the vehicle. The user simply selects the diagnostics protocol and bus system used by the ECU. Depending on the vehicle type various diagnostics functions are available.

The Scan-Tool function is implemented in compliance with SAE J1979 (OBDII/EOBD) and SAE J1939 (HD-OBD). The SAE J1979 scan tool function supports all 10 services (Service $01-Service $0A) defined by the authorities as well as all the sub-functions (PIDs). The SAE J1939 scan tool function supports the required diagnostic messages and parameter groups. Results from all the OBD related control units will be displayed automatically. Additionally, a table of all supported services and sub-functions can be displayed.

New: WWH-OBD (World Wide Harmonized - Onboard Diagnostics) support in accordance with ISO 27145 is also part of this functional group. The goal of the standard WWH-OBD is to replace the regional standards of vehicle onboard diagnostics with a global standard.

The advanced developer functions are designed for development engineers. With these functions it is possible to read out and display the internal fault memory in full, display the status of the diagnostics functions, read out RAM cells, adaptation ID fields etc. For this a control device description file in DAM or A2L format is required. Special adaptations of display masks (e.g. for IUMPR/ratio values) are available for engine control units from Robert Bosch GmbH up to Motronic EDC/MED 17 and for Continental´s SIMOS. Customisations for other ECU manufacturers are possible at any-time and have been carried out repeatedly.

Further program functions:

- Automatic and manual measurement with adjustable parameters
- Storage of data in different formats e.g. TXT, XML and Excel compatible CSV files for recordings
- Automation options via DDE and ASAP-3 interfaces as well as via the so-called Web services (in accordance to the ASAM HIL API definitions) for connecting to a test stand or simulator.
- Option for flash programming using KWP2000 (K-Line, CAN TP2.0 and ISO-CAN), UDS (ISO-CAN) and UDS (FlexRay). As data source SGM and ODX containers as well as HEX/S19/BIN/MOT files can be used. Partial flash programming and flash programming via DDE and Web services remote control is possible.
- Two new optional plugins for script programming and execution as well as for logfile data analysis and value playback.
- Display and transmission of raw CAN messages, described in DBC and UEF files
- Parameterisable import module for ODX project description files with automatic placement into a project hierarchy
- Driver control station functionality for driving after standard (e.g. FTP75, NEFZ) or self-defined driving cycles with use of freely selectable values acquired via a diagnostic session.
- Available in German, English, French, Polish, Spanish, Italian, Czech and Hungarian language

Technical Data:

- **DiagRA D** for Windows NT SP6/2000 SP4/XP/Vista/Win7 (32/64bit)
- Support of various diagnostic protocols on K-Line, CAN and FlexRay, e.g. ISO14230 (KWP2000), ISO15765, ISO14229 (UDS) as well as GMLAN
- K-Line diagnostics with simple level converter cable on RS232 or USB port
- Support of multiple CAN und multi-bus interface devices
  - I+ME Actia XS family
  - Vector CANcard X/XL, and CANcase XL, ETAS CAN-link I/II
  - Kvaser CAN adapter series
  - 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 after ISO 22900-2
  - Siemens BlueVCI
  - IXXAT CAN interface devices
- FlexCard Cyclone II SE support for FlexRay bus access
- Output of measurement values as normalised analogue signals via our new D/A converter **RAdio**

Acquired diagnostic measurement values can be processed with the measurement option **DiagRA M** graphically and numerically. The data can be exported as CSV, TXT or MDF/DAT files.

DiagRA D will be delivered with an Open-Source(GPL) DOS tool for the conversion of the test sequences for the SAE J1699-3 OBDII Compliance Test Cases. The user is supported with:

- graphical user interface for inputs and outputs
- translation of the J1699-3 instructions into several languages (currently available: English, German)
- log file viewer with structural overview and search function
- log file formatter for complex analysis of the logfiles and output into XML files. These can be used for presentations in a browser or to generate a PDF file. PDF files contain results of the analysis as well as the original log file content.

The Open Source Tool is permitted by the SAE as the only accepted tool and is maintained on behalf of SAE. 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. On the basis of this combination, 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.

The use of **DiagRA D** is only possible with a special software license key, generated by RA Consulting.

Workshop diagnostics function, advanced developer functions and flash option are only delivered to user groups defined by RA Consulting. A variant **DiagRA D for Windows CE** is also available. It comes with the full functional range of workshop diagnostics and with reduced range of Scan-Tool and developer functions. It has no interconnectivity with other tools of the **DiagR A MCD Toolset.** The Scan-Tool function is available as a separate tool with the name **Silver Scan-Tool.**

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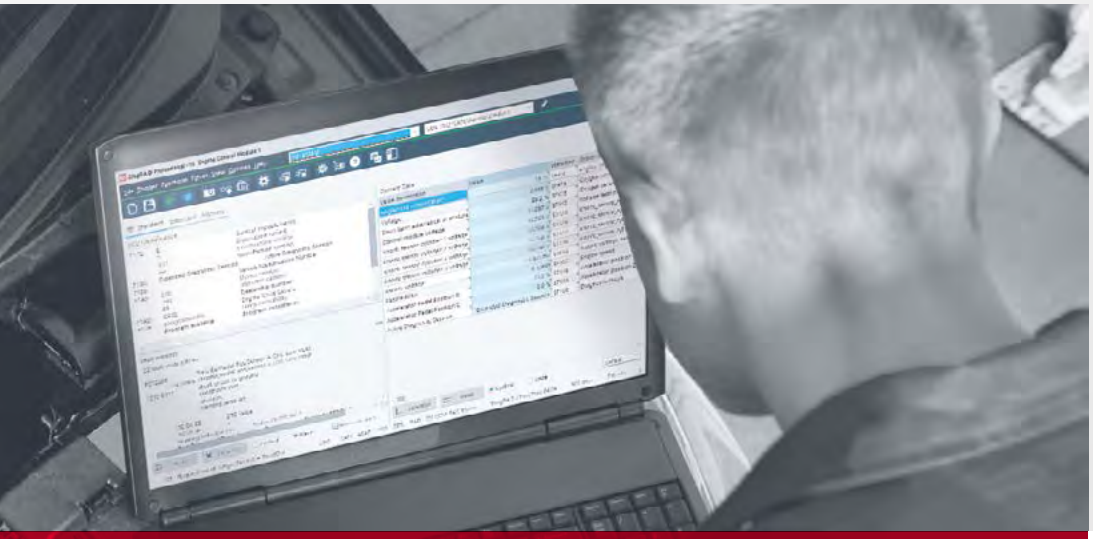
DiagRA® D

The right solution for vehicle diagnostics

Collecting diagnostic data from any ECU



OBJECTIVE: DIAGNOSTICS, FLASH PROGRAMMING

Key Features

- Comprehensive OBD Scan-Tool for cars and trucks
- Auto-configuration of services and parameters
- Create snapshots in XML and TXT
- Data recording in Excel, CSV and MDF
- Advanced J1699-3 compliance test
- Low level diagnostics and CAN monitoring
- Real-time communication monitor
- Remote control by web services
- Output of measured values on CAN
- Drive cycle assistant

Advantages

- ECU communication with low hardware requirements
- Reliable and up-to-date with all standards and regulations
- Outstanding customer support

SUPPORTED

ECUs
Any

Protocols
UDS, KWP2000, DoIP and legacy

Interfaces
Pass-Thru, RP1210, D-PDU-API and many supplier-specific devices

Physical connection
CAN, CAN FD, K-line, FlexRay, Ethernet, Broad-R-Reach

Standards
SAE J1979, SAE J1979-2/-3, SAE J1939, ISO 27145, ISO 14229, ISO 14230, ISO 13400 and many others

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DiagRA® X

The right solution for measurement and calibration

A modern and user-friendly way to measure and optimize ECU software

OBJECTIVE: MEASUREMENT, CALIBRATION AND FLASH PROGRAMMING

Fast Measurement

- Plug and play source connectivity and instant data visualization
- Rich set of configurable visualizers (Oscilloscope, Icons, Gauges, Tables, GPS, ...)
- Triggers and action management

Smart Calibration and Flashing

- Calibrate your control systems (ECUs) in real-time
- Smart and safe calibration visualizers
- Secure flashing of controllers

Compact Data Management

- Easy to use onboard compact calibration data manager
- Analyze your calibration data vividly in both online and offline mode

Easy Measurement Data Analysis

- Analyze your recordings with our powerful analysis tool DiagRA®X Viewer Pro

SUPPORTED

Protocols
ASAM MCD-1 CCP
ASAM MCD-1 XCP
ASAM MCD-3 MC, ASAP3
CAN, CAN FD, UDS, GPS

Devices
Electronic control units
Measurement modules
CAN networks

File Formats
ASAM-MCD-2 MC (A2L)
ASAM MDF (MF4)
HEX, S19, ODX-F and DCM
CANdB (DBC)
LAB, TEXT, CSV and XLSX

Interfaces
Kvaser, Intrepid Control Systems, I+Me Actia, Vector, Pass-Thru and many more

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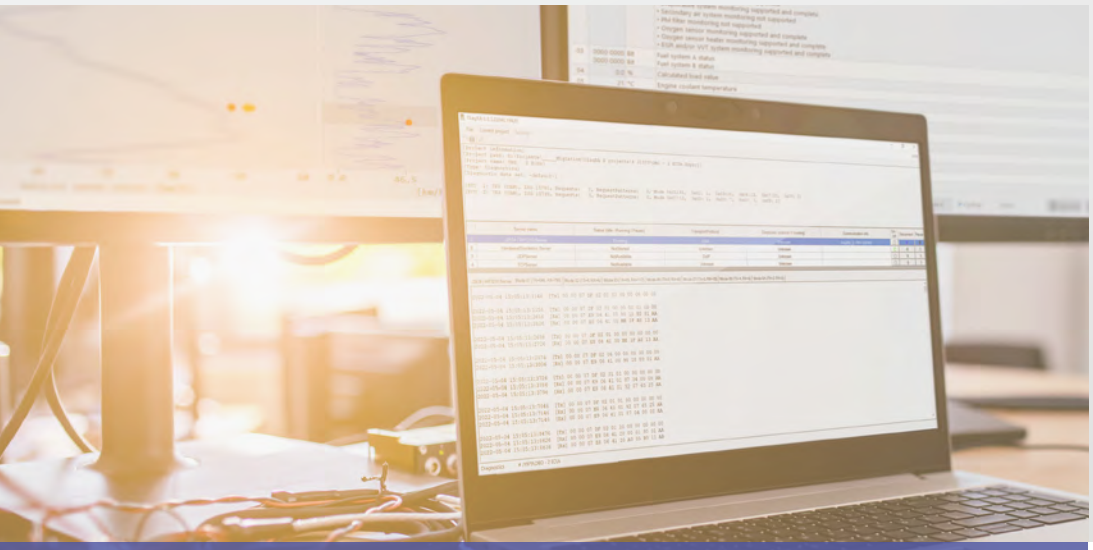
DiagRA® S

The right solution for pure software based diagnostic simulation

Diagnostic communication without hardware



OBJECTIVE: SIMULATION

Key Features

- Fast creation of simulation models from imported diagnostic log files
- Parallel simulation via multiple interfaces
- Monitoring window for the overview of the running communication
- Integrated support for ISO-TP (CAN, CAN FD), SAE J1939-21, and DoIP (ISO 13400)
- Communication via the supplied RA D-PDU API (ISO 22900-2), DiagRA S J2534 interface, DiagRA S RP1210 or DoIP over Ethernet
- Hardware simulation via active connection to the physical bus

Advantages

- Support for most diagnostic protocols and diagnostic communication interfaces
- Easy execution of the simulation in the clear user interface and as command line applications (e.g. for automated tests)
- User interface for displaying and editing simulation files with optional assistance based on a configured ODX database

SUPPORTED

Standards
SAE J1979, SAE J1979-2, SAE J1979-3, SAE J1939, ISO 27145, ISO 14229, ISO 14230, ISO 13400, ISO 11898, ASAM MCD-2D (ODX), ISO 22901-1

Interfaces
SAE J2534 (Pass-Thru), RP1210, D-PDU API (ISO 22900-2)

Physical connection
CAN, CAN FD, K-line, Ethernet

Protocols
OBD, UDS, KWP2000, SAE J1939, SAE J1699

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THE RIGHT TIME TO SIMULATE A DIAGNOSTIC COMMUNICATION

Vehicle diagnostics is often a very complex process, consisting of different phases for which different hardware is required, but which is not always tangible. Due to our experience, we know the everyday problems of our customers:

- Diagnostic hardware is used in parallel by different people
- No fast access to the diagnostic hardware
- Technical problems with the hardware

Our DiagRA® S is the solution to these problems.

DiagRA® S – the simple and reliable solution for simulating most of all standardized diagnostic communication interfaces and protocols.

DIAGRA® S - THE RIGHT TOOL FOR RELIABLE SIMULATION

DiagRA® S allows you to perform manual and automated diagnostic application testing and training in vehicle diagnostics - without hardware.

Testing

Trainings

Diagnostic application

DiagRA® S has been designed for a variety of use cases:

- Simulation of one or multiple ECUs
- Simulation without hardware interface (VCI) and without installation
- Diagnostic communication both via the application layer (e.g. UDS) and via the transport layer (ISO-TP, DoIP)

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THE RIGHT TIME TO FOCUS ON USABILITY

40% OF SOFTWARE FEATURES ARE NEVER UTILIZED BY MOST USERS

Together with a team of designers and application engineers, we have identified critical issues that are responsible for disorganized and exhausting software work:

- Too much unused functionality
- Disorganized architecture and poor usability
- Time consuming configuration options

With users, technology, and a variety of use cases from different industries in mind, we have created a comprehensive software solution.

› **DiagRA® X – The next generation measurement and calibration tool for application engineers with a modern usability concept that allows the user to work efficiently and comfortably.**

DIAGRA® X – NEXT GENERATION APPLICATION TOOLSET

DiagRA® X is an efficient, intuitive, and powerful Windows software that offers comprehensive solutions for measurement, calibration, flash programming, and data analysis in many application areas.

Car, truck and bus | E-Mobility infrastructure | Power utilities | Forestry and garden tools | Test bench

DiagRA®X has been developed with modern usability and design concepts for:

- Maximum ease of use for the user in different working environments
- State-of-the-art solution with focus on core functionalities
- Attractive price-to-feature ratio covering simple to complex use cases

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THE RIGHT TIME TO TAKE CONTROL WITH FASTER, MORE FLEXIBLE DIAGNOSIS

When a release is approaching, immediate action is called for. Reading the failure memory, compliance with latest generation of standards or even flash programming vehicle control units is a multi-part workflow that often means individual solutions for each step in the process. Working in close co-operation with our customers for over two decades, we have developed solutions for three main problems which pose a risk to your release:

- OEM specific workshop diagnostics required
- Insufficient or poor quality testing
- Outdated, or even incorrect, regulations and standards

With responsible handling to ensure full compliance with standards, regulations and functional requirements we have created an all-round solution.

❯ DiagRA® D – dependable diagnostics software for the collection of high-quality diagnostics data from vehicle control units.

DIAGRA® D – THE RIGHT PLACE IN YOUR VEHICLE DIAGNOSTICS WORKFLOW

DiagRA® D combines 25 years of diagnostics expertise in one product. It has been carefully adapted to encompass stringent user requirements and the latest standards in the following fields:

Engineering · Workshops · Testing · Certification

DiagRA® D has been designed for a variety of working environments:

- Windows desktop and laptop computers
- Various working environments for field test or indoor use
- Light and dark modes for optimal readability in changing light conditions

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