

VSI-2534

Hardware Products from
Dearborn Group, Inc.

J2534 Universal Pass-Thru Programmer and Development Tool

Key Benefits

- ✓ “Out of the box” J2534 Pass-Thru device. Easy to use.
- ✓ J2534 API Version 0404 support. This the most current.
- ✓ Supports CAN (ISO 11898, J2284), Single-Wire CAN, ISO 15765, ISO 9141, KWP2000, J1850 PWM (Ford SCP), J1850 VPWM (both GM Class 2 and Chrysler), SCI and GM-UART.
- ✓ USB 2.0 connection to a PC for fast downloads. Operates at full network speed with fast and efficient data transfers.
- ✓ Connects to a vehicle with an OBDII cable or a custom cable.
- ✓ Runs the SAE J1699 Vehicle Validation software.
- ✓ On or off-board J2534 module programming.
- ✓ Programming voltages 5 to 20 volts in 100 mv steps.
- ✓ Useful for diagnostics or module development.
- ✓ Manual and technical support is included.
- ✓ Developed and Made in the USA. Supported everywhere.



Background: The VSI-2534 is a J2534 Pass-Thru device with a primary purpose to program automotive ECUs (Electronic Control Units). It provides module programming for development, end-of-line testing and aftermarket re-programming.

The VSI-2534 is also useful for vehicle diagnostics, development, general design, hardware-in-the-loop simulation and anywhere communications with a vehicle network are required.

The VSI-2534 is perfect for running the J1699 emissions compliance testing software required in the USA. It provides a stable reference design during development and testing.

The VSI-2534: It is a device that is J2534 aware and is pictured above. It contains circuitry with protection to connect to any of the supported networks through the vehicle OBD-II connector, directly to a module (in or out of a vehicle) or to any network by using a custom cable. Power can come from the vehicle.

How it works: A PC is connected to a vehicle through the VSI-2534 “Pass-Thru device” to the OBD-II J1962 connector and on to the ECUs. The VSI-2534 provides the translation interface between the PC and the vehicle or module.

The user application on the PC sends and receives data to the vehicle using J2534 function calls to this device. This is illustrated here using the VSI-2534.



How to use the VSI: There are currently 4 ways.

- 1) Use the SAE J1699 validation software on a PC to confirm if the vehicle conforms to OBD-II specifications.
- 2) Use DG's J2534 SDK (Software Development Kit) to query the vehicle or module. This package is discussed on the next page.
- 3) Re-program a module's firmware using an aftermarket PC program purchased from an automotive manufacturer.
- 4) Write your own PC application using the supplied Windows DLL and making J2534 function calls to the VSI-2534 and ultimately sending data into the vehicle and receiving responses back. DG can provide this on a contract basis.

You can write any application to communicate with a module using either proprietary or public protocols.

What J2534 is: The J2534 protocol consists of a collection of Windows API function calls used to communicate in a standard way with a vehicle's electronic systems. Information can then be passed to and from the vehicle using these function calls called from a Windows PC application.

Dearborn Group provides the J2534 software and the SDK as part of the software package provided with the VSI-2534 as well as other DG products such as the Gryphon, Gryphon S3, S-CAT2 and Python.

Who developed J2534: It was developed and is maintained by an industry consortium of which Dearborn Group is a member. The specification document can be purchased from the SAE at www.sae.com. No royalties are payable to implement J2534 in a Pass-Thru device or a vehicle.

Version 1.38

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J2534 Function Calls: There are currently 14 function calls:

- PassThruOpen
- PassThruClose
- PassThruConnect
- PassThruDisconnect
- PassThruReadMsgs
- PassThruWriteMsgs
- PassThruStartPeriodicMsg
- PassThruStopPeriodicMsg
- PassThruStartMsgFilter
- PassThruStopMsgFilter
- PassThruSetProgrammingVoltage
- PassThruReadVersion
- PassThruGetLastError
- PassThruIoctl

IOCTL Calls: There are 13 IOCTL calls used to directly address hardware components:

- GET_CONFIG
- SET_CONFIG
- READ_VBATT
- READ_PROG_VOLTAGE
- FIVE_BAUD_INIT
- FAST_INIT
- CLEAR_TX_BUFFER
- CLEAR_RX_BUFFER
- CLEAR_PERIODIC_MSGS
- CLEAR_MSG_FILTERS
- CLEAR_FUNCT_MSG_LOOKUP_TABLE
- ADD_TO_FUNCT_MSG_LOOKUP_TABLE
- DELETE_FROM_FUNCT_MSG_LOOKUP_TABLE

What is the J2534 SDK: This is a software and documentation set that is used to develop your own application using J2534 function calls. An intuitive sample user interface is included so you can communicate with the VSI and your vehicle or module immediately. Sample screen shots are shown above.

What can you do with the SDK: Using the intuitive user interface of J2534 SDK, you can quickly and easily:

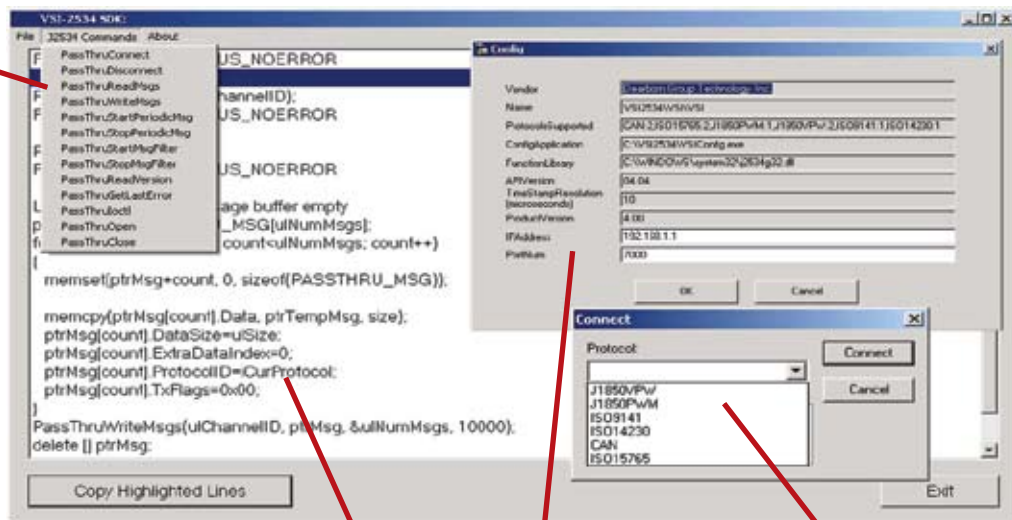
- ✓ Connect to the vehicle with the applicable protocol.
- ✓ Send commands to the vehicle and read responses.
- ✓ Set, enable/disable Filtering values: Block, Pass, Flow Control.
- ✓ Save commands and data to an ascii file. Clear the data window.
- ✓ Start and stop user specified periodic messages.
- ✓ Issue IOCTL commands to the hardware.

What files are included in the DG J2534 SDK:

J2534.DLL - this DG program is installed in your PC and is where your application calls the J2534 functions. This DLL (Dynamic Link Library) translates between your application and the Pass-Thru device and ultimately to the vehicle.

VSI2534SDK.exe - this executable program (shown above) allows you to make manual queries to the vehicle. It gives you a base reference to start your own development.

VSI2534Config.exe - This allows you to change your environments in the Windows registry from your PC as shown above.



SDK User Interface: Vehicle communication Windows configuration Protocol Selection

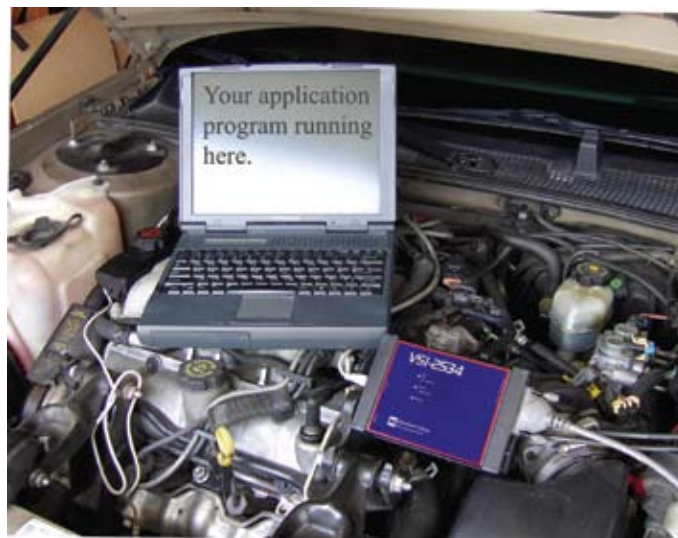
J2534.h - the header file is used to compile your application. It defines various variables, pointers, arrays and structures used by your compiler to run and access the J2534 DLL.

A comprehensive manual is included.

How is the J2534 SDK obtained: It is included in the software package supplied with the purchase of a VSI-2534.

This package, including the manual is available on the DG website at www.dgtech.com.

Custom applications: For customized versions of the DG J2534 SDK, or to use with your own custom hardware: a special order of the J2534 SDK is available. Please contact the Dearborn Group for more information.



For more information:

For more information regarding the VSI-2534, the J2534 SDK or other DG products, to find technical specifications, pricing or to locate your local representative, contact the Dearborn Group at sales@dgtech.com, visit www.dgtech.com or call.