

Diagnostic Software for Automotive Electronic Control Units

NI Automotive Diagnostic Command Set

- Ability to implement CAN-based automotive diagnostics in LabVIEW, LabWindows™/CVI, and Visual C/C++ 6.0
- Examples for KWP2000 and UDS, including a software ECU simulator

Diagnostic Protocols

- KWP2000 (ISO 14230-3)
- Diagnostics on CAN (ISO 15765-3)
- On-Board Diagnostics (OBD-II)

KWP2000 on CAN

- Diagnostic management
- Data transmission
- Stored data transmission (diagnostic trouble codes)
- I/O control
- Remote activation of routine

Transport Protocols

- ISO 15765-2 network layer
- Volkswagen TP 2.0

CAN Interfaces

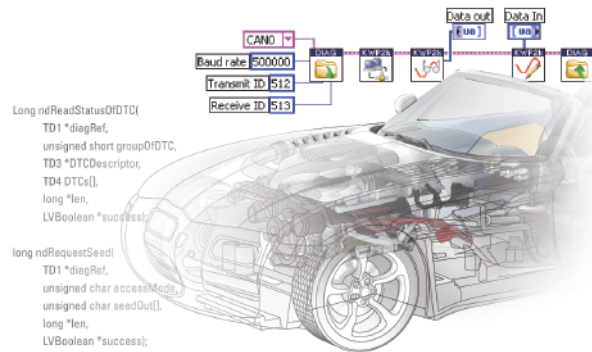
- NI CAN Series 2 (PXI, PCI, PCMCIA)
- NI USB-847x

Operating Systems

- Windows XP/2000
- LabVIEW/CVI Real-Time

Development Environments

- LabVIEW
- LabWindows/CVI
- Visual C/C++ 6.0



Overview

The National Instruments Automotive Diagnostic Command Set (ADCS) helps developers design and implement a wide variety of automotive diagnostic applications for electronic control unit (ECU) production using protocols such as Keyword Protocol 2000 and Diagnostics on CAN. With NI CAN hardware compatibility, including USB, PCI, PXI, and PCMCIA, NI ADCS is suitable for a range of automotive diagnostic applications that typically involve reading and writing parameters, accessing diagnostic trouble codes (DTCs), flashing ECU firmware, and initiating ECU diagnostic test modes.

Diagnostic and Transport Protocols

Because CAN networks use small 8 B frames for communication, you need higher-level protocols for consistent communication of longer messages and standardization of message definitions for diagnostics. You can use the ISO Transport Protocol (15765-2) and Volkswagen Transport Protocol 2.0 for underlying communications to ECUs. With a transport protocol established, you need a diagnostic protocol for defining which messages correspond to particular functions. ADCS provides support for industry-standard diagnostic protocols including Keyword Protocol 2000 (KWP2000) and Diagnostics on CAN (ISO15765-3, UDS).

Flexible Interface Options

ADCS works with NI USB CAN interfaces to help you implement a variety of portable and in-vehicle diagnostic applications. Applications that benefit from ADCS include ECU firmware flashing tools, DTC reading and logging, ECU diagnostic mode interfaces, and live diagnostic variable monitoring and logging for on-road tests. You can duplicate and deploy

applications developed with ADCS and NI CAN hardware throughout an organization for a fraction of the cost of comparable off-the-shelf tools.

LabVIEW Real-Time Support

With LabVIEW Real-Time support, you can use ADCS for high-performance diagnostic applications requiring integration with other systems such as those found in automotive engine and chassis dyno testing as well as other stationary applications. LabVIEW Real-Time is an ideal operating system for applications requiring high reliability, longevity, and determinism.

Protocol Flexibility

While ADCS is designed to work with standard implementations of KWP2000 and Diagnostics on CAN, you can customize ADCS for nonstandard requirements in both the transport and diagnostic protocol layers. LabVIEW source code is provided for most transport and session functions, so you can modify ADCS for your specific application requirements.

Ordering Information

NI Automotive Diagnostic Command Set	779890-01
NI Automotive Diagnostic Command Set	
Deployment License	779966-01

BUY NOW!

For complete product specifications, pricing, and accessory information, call 800 813 3693 (U.S.) or go to ni.com/can.



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