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Find the *National Instruments PXI-8461/2* at our website: *Click HERE*

DeviceNet Master Interfaces

NI PCI-DNET, NI PXI-8461, NI PCMCIA-DNET

- High-performance Intel 80386EX microprocessor
- 500 V optically isolated physical layer
- Pluggable screw terminal connector (Combicon style)
- Master (scanner) and slave protocols for complete access to DeviceNet network
- Based on Allen-Bradley's Master Toolkit for optimal reliability
- Full range of DeviceNet features
- Use 2 or more 1-port interfaces in the same system
- Compatible with Allen Bradley:
  - winDNBT-16 architecture
  - DeviceNet Manager

Operating Systems
- Windows 2000/NT/XP/Me/9x

Recommended Software
- LabVIEW
- LabWindows/CVI
- Lookout

Driver Software (included)
- NI-DNET



DeviceNet

Overview

National Instruments DeviceNet kits include 1-port CAN hardware interfaces that feature Intel 80386EX processors for high-performance master/scanner capabilities on DeviceNet networks. (included) in the DeviceNet interface kit is NI-DNET software, which provides a high-level API for complete access to a DeviceNet network. To use the NI-DNET software, you first configure your communication with other DeviceNet devices within your application. Then, you simply read and write the networked I/O variables needed by your application. Firmware running on the 80386EX of the CAN interface device handles all details of DeviceNet communication. It continuously scans networked devices and maps their I/O variables into the shared memory of the board. NI-DNET reads and writes functions, and then accesses the shared memory to provide a deterministic image of networked I/O variables.

Applications for National Instruments DeviceNet interface kits include prototyping DeviceNet systems, PC-based control, embedded control systems, PC-based HMI, and DeviceNet network management utilities.

Hardware

National Instruments DeviceNet kits include CAN interface devices in three formats. The PCI-CAN is a short PCI board. The PXI-8461 is a 3U size module compatible with the PXI modular instrumentation and the CompactPCI industrial computer standard. The PCMCIA-CAN is a Type II PC Card fully compliant with the PC Card standard. You can use the PCMCIA-CAN in a notebook or other computer with either a Type II or Type III slot.

All National Instruments CAN devices use an Intel 80386EX microprocessor to handle communications directly on the interface device. Interfacing to the DeviceNet network is by means of the DeviceNet-specified Combicon-style pluggable screw terminal. National Instruments CAN interfaces meet all physical layer requirements of the DeviceNet specification, including 500 V optical isolation and bus-powered transceivers.

NI-DNET Communications Software

Included with all National Instruments DeviceNet interface kits is NI-DNET software for Windows 2000/NT/XP/Me/9x. NI-DNET includes Windows device drivers that engineers use for application development, as well as the protocol firmware that runs on the embedded 80386EX microprocessor. The NI-DNET device drivers are full 32-bit drivers designed for use on Windows 2000/NT/XP/Me/9x.

These device drivers are compatible with standard programming environments such as Borland C/C++, Microsoft Visual Basic and Microsoft C/C++, as well as National Instruments application software products – such as LabVIEW, LabWindows/CVI, and Lookout. The NI-DNET software also includes examples for these programming environments.

The 80386EX processor on a National Instruments CAN interface provides the operating environment for execution of the DeviceNet protocol communications stack. DeviceNet specifies timing requirements to ensure reliable, deterministic operation of the bus. As the master (scanner) in a typical system, a National Instruments CAN interface must provide the necessary

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DeviceNet Master Interfaces

system responsiveness. The majority of the DeviceNet protocol executes on the embedded 80386EX of a National Instruments CAN interface, resulting in improved response to incoming messages. Embedded execution of the DeviceNet protocol stack also results in more deterministic network performance because the onboard microprocessor is dedicated to DeviceNet communication activities.

The NI-DNET software can act as a DeviceNet master to communicate with up to 63 slave devices Communication capabilities include explicit messaging, polled I/O, strobed I/O, and change-of-state/cyclic I/O. The NI-DNET software can also act as a DeviceNet slave.

The NI-DNET software is compatible with the Allen-Bradley WinDNET-16 architecture. With this software device driver, you can use the CAN interface device with various Allen-Bradley DeviceNet tools such as the DeviceNet manager software.

DeviceNet Communications Adapter Features	
Explicit peer-to-peer messaging	✓
I/O peer-to-peer messaging	–
Configuration consistency value	–
Faulted node recovery	–
Baud rates (kb/s)	125, 250, 500
Master/scanner	✓
I/O slave messaging	
Bit strobe	✓
Polling	✓
Cyclic	✓
Change of state (COS)	✓

Cabling

PCI and PXI DNET kits do not include interface cables but use DeviceNet standard Combicon-style pluggable screw terminals for network connections. The PCMCIA-DNET is shipped with an interface cable that provides the standard Combicon-style connector, as well as a DB-9 connector. Screw terminal pin assignments on all interfaces following the DeviceNet specifications. All interfaces include full documentation of screw terminal signal assignments.

Ordering Information

NI PCI-DNET 777358-01
NI PXI-8461/D 777709-01
NI PCMCIA-DNET[1] 777599-01
Includes hardware and NI-NDNET software.
1- Includes interface cable.

BUY ONLINE!

For more information, or to order products online visit ***ni.com/info*** *and enter devicenet*

Specifications

Power Requirements from PCI, PXI, or PCMCIA I/O Channel, +5 VDC

Device	Typical Current	Maximum Current
PCI-CAN	750 mA	950 mA
PXI-8461	750 mA	950 mA
PCMCIA-CAN	500 mA	750 mA

Physical

Dimensions
PCI ..... 10.7 by 17.5 cm (4.2 by 6.9 in.)
PXI ..... 16.0 by 10.0 cm (6.3 by 3.9 in.)
PCMCIA..... Type II PC card

I/O Connections (All Boards)

Combicon-style pluggable screw terminals

Operating Environment

Ambient temperature..... 0 to 55 °C
Relative humidity ..... 10 to 90%, noncondensing

Storage Environment

Ambient temperature..... -20 to 70 °C
Relative humidity ..... 5 to 95%, noncondensing

Noise Emission

PCI, PCMCIA..... FCC Class A verified
PCI, PXI, PCMCIA..... FCC Class A verified

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