Ethernet Digital I/O Devices

**NI ENET-9421, NI ENET-9472, NI ENET-9481 NEW!**

- 10/100BASE-T/Ethernet port
- Up to 100 m cabling distance per segment
- C Series signal conditioning for 8 to 30 VDC digital I/O and 60 VDC/250 V rms relay output
- Two digital PFI lines for triggering import/export
- Channel-to-channel or channel-to-earth isolation for protection from high-voltage transients and ground loops
- 0 to 55 °C temperature range
- 9 to 30 VDC power supply
- Panel and DIN-rail mounting kits available

**Operating Systems**
- Windows Vista/XP/2000

**Software Support**
- LabVIEW
- LabWindows/CVI
- Measurement Studio
- ANSI C/C++
- C# and Visual Basic .NET
- Visual Basic 6.0

**Measurement Services Software (included)**
- NI-DAQmx driver software
- Measurement & Automation Explorer configuration utility
- LabVIEW SignalExpress LE data-logging software

<table>
<thead>
<tr>
<th>Model</th>
<th>Logic Level</th>
<th>Input Lines</th>
<th>Output Lines</th>
<th>Sink/Source</th>
<th>Signal Levels</th>
<th>Output Drive</th>
<th>Connectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENET-9421</td>
<td>24 V</td>
<td>8</td>
<td>–</td>
<td>Sink</td>
<td>11 to 30 V</td>
<td>–</td>
<td>Screw term, D-Sub</td>
</tr>
<tr>
<td>ENET-9472</td>
<td>High voltage</td>
<td>–</td>
<td>8</td>
<td>Source</td>
<td>6 to 30 V</td>
<td>750 mA</td>
<td>Screw term, D-Sub</td>
</tr>
<tr>
<td>ENET-9481</td>
<td>Relay</td>
<td>–</td>
<td>4</td>
<td>Sink/source</td>
<td>60 VDC, 250 V rms</td>
<td>2 A</td>
<td>Screw term</td>
</tr>
</tbody>
</table>

Table 1. NI Ethernet Digital I/O Devices

**Ethernet Data Acquisition Overview**

Ethernet data acquisition is an extension of PC-based data acquisition to measurement and automation applications distributed over a large area or network. NI Ethernet digital I/O devices combine industry-standard Ethernet communication, direct sensor connectivity, and the flexibility of NI LabVIEW software for remote monitoring and control of pumps, valves, relays, and more. With the flexibility of LabVIEW graphical programming and the ubiquity of the Ethernet networking infrastructure, NI Wi-Fi data acquisition (DAQ) makes it easy to incorporate wireless connectivity into new or existing PC-based measurement or control systems.

**NI ENET-9163 and C Series Hardware**

Each NI Ethernet DAQ device is a combination of an NI ENET-9163 wireless carrier and an NI C Series signal conditioning module (Figure 1). The ENET-9163 provides IEEE 802.3 Ethernet connectivity back to a host PC. You can synchronize an ENET-9163 with other devices by using two onboard individually programmable digital trigger lines to export or import sample clocks, start triggers, pause triggers, and reference triggers (Figure 2).

C Series modules offer direct sensor connections and built-in signal conditioning for a variety of measurements, including temperature,
Ethernet Digital I/O Devices

High-voltage digital I/O, strain, acceleration, current, and voltage. In addition to the ENET-9163, you can use them for measurement and control applications with different chassis, including NI CompactDAQ, NI CompactRIO, and the NI USB-9162 carrier. The NI WLS-9163 carrier provides the same features as the ENET-9163 plus an integrated IEEE 802.11b/g radio for wireless communication.

You may purchase ENET-9163 carriers and select C Series modules separately or together in a kit as ENET-9xxx devices. Visit ni.com/crio/cseries for a list of compatible devices.

Recommended Software
NI Ethernet DAQ devices use the same NI-DAQmx API as hundreds of other NI PCI, PXI, and USB DAQ devices, so incorporating an NI Ethernet DAQ device into a new or existing measurement system is easy. National Instruments measurement services software, built around NI-DAQmx driver software, includes intuitive application programming interfaces, configuration tools, I/O assistants, and other tools designed to reduce system setup, configuration, and development time. National Instruments recommends using the latest version of NI-DAQmx driver software for application development in NI LabVIEW, LabVIEW SignalExpress, LabWindows/CVI, and Measurement Studio software. To obtain the latest version of NI-DAQmx, visit ni.com/support/daq/versions.

NI Ethernet DAQ devices are compatible with the following versions (or later) of NI application software: LabVIEW 7.11, LabWindows/CVI 7.x, and Measurement Studio 7.x. They are also compatible with ANSI C/C++, C#, Visual Basic .NET, and Visual Basic 6.0.

1 NI Ethernet DAQ devices are not compatible with NI LabVIEW 8.0.

Shipping Kit Contents
Every shipping kit for ENET-9xxx wireless DAQ devices includes the following:
- ENET-9163 Ethernet C Series carrier
- 12 VDC power supply (region-specific power cord not included)
- Micro-fit plug and terminal kit (NI 9942)
- Rubber nonslip adhesive feet
- NI-DAQmx 8.9 (or later) software CDs for Windows Vista/XP/2000 (includes NI LabVIEW SignalExpress LE)
- NI-DAQmx for the NI WLS/ENET-9163 Getting Started Guide

Additional Specifications
Find additional technical specifications for the ENET-9163 carrier in the NI WLS/ENET-9163 User Guide and Specifications document on ni.com/manuals. For additional technical specifications on supported C Series modules, visit ni.com/crio/cseries.

Ordering Information
NI ENET-9163 carrier only .................................................. 780501-01
Combined NI WLS-9163 and C Series Module Kits
NI ENET-9421 ...................................................................... 780943-01
NI ENET-9421 D-Sub ............................................................ 780944-01
NI ENET-9472 ...................................................................... 780945-01
NI ENET-9472 D-Sub ............................................................ 780946-01
NI ENET-9481 ...................................................................... 780947-01

Power Cord (Required)
U.S., 120 VAC ...................................................................... 763000-01
North America, 240 VAC ...................................................... 763068-01
UK, 240 VAC ...................................................................... 763064-01
Australia, 240 VAC .............................................................. 763066-01
Europe, 240 VAC ................................................................ 763067-01
Switzerland, 220 VAC .......................................................... 763065-01
Japan, 100 VAC .................................................................. 763634-01

Industrial IEEE 802.11 Access Points (Optional)
NI UES-3880, unmanaged .................................................... 780038-01
NI UES-3980, managed ........................................................ 780039-01

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

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