

Wi-Fi Data Acquisition

NI WLS-9211, NI WLS-9215, NI WLS-9215 BNC NI WLS-9219, NI WLS-9234, NI WLS-9237 **NEW!**

- IEEE 802.11b/g (Wi-Fi) wireless communication interface
- 30 m indoor, 100 m line of sight wireless signal range (typical)
- Advanced security with 128-bit AES data encryption and IEEE 802.11i (WPA2) support
- 10/100 BASE T/X Ethernet port
- Streaming measurements at more than 50 kS/s with 24-bit resolution
- C Series signal conditioning for thermocouples, RTDs, accelerometers, microphones, strain gages, current, and more
- Two digital PFI lines for triggering and sample clock import/export
- 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



Model	Signal Conditioning	Channels	Rate	Connectivity
WLS-9211	Thermocouple, 24-bit	4	14 S/s	Screw terminal
WLS-9215	Simultaneous sampling, 16-bit	4	100 kS/s/ch	Screw terminal or BNC
WLS-9219	Universal (11 modes)	4	100 S/s/ch	Spring terminal
WLS-9234	IEPE (sound and vibration), 24-bit	4	51.2 kS/s/ch	BNC
WLS-9237	Bridge completion, 24-bit	4	50 kS/s/ch	RJ50

NI Wi-Fi Data Acquisition Devices

Simple, Secure Wi-Fi Data Acquisition

Wi-Fi data acquisition is an extension of PC-based data acquisition to measurement applications where cables are inconvenient or uneconomical. NI Wi-Fi data acquisition (DAQ) devices combine IEEE 802.11b/g wireless or Ethernet communication; direct sensor connectivity; and the flexibility of NI LabVIEW software for remote monitoring of electrical, physical, mechanical, and acoustical signals. NI Wi-Fi DAQ devices can stream data on each channel at more than 50 kS/s with 24 bits of resolution. In addition, built-in NIST-approved 128-bit AES encryption and advanced network authentication methods offer the highest commercially available network security. With the flexibility of LabVIEW graphical programming and the ubiquity of 802.11 network infrastructure, NI Wi-Fi DAQ makes it easy to incorporate wireless connectivity into new or existing PC-based measurement or control systems.

NI WLS-9163 and C Series Hardware

Each National Instruments Wi-Fi DAQ device is a combination of an NI WLS-9163 wireless carrier and an NI C Series measurement module. The WLS-9163 provides both IEEE 802.11b/g and Ethernet connectivity back to a host PC. You can synchronize a WLS-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.

C Series modules provide direct sensor connectivity and built-in signal conditioning for a variety of measurements, including temperature, strain, acceleration, current, voltage, and more. In addition to the WLS-9163, they may be used interchangeably for measurement and control applications with different chassis, including NI CompactDAQ and CompactRIO, and the NI USB-9162 and NI ENET-9163 carriers.

You may purchase WLS-9163 carriers and select C Series modules separately or together in a kit as WLS-9xxx devices. See the table for a list of compatible devices.

Wireless Security

NI Wi-Fi DAQ devices implement the highest commercially available wireless network security standard, IEEE 802.11i (commonly known as WPA2), including network authentication and data encryption. Authentication ensures that only authorized devices have network access, and encryption prevents data packets from being intercepted. NI Wi-Fi DAQ devices support multiple Extensible Authentication Protocol

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(EAP) methods that provide for mutual authentication between the data acquisition devices and wireless access points (WAPs). These devices also support the Advanced Encryption Standard (AES), a 128-bit cryptographic algorithm endorsed by the National Institute of Standards and Technology for use in many U.S. government facilities. By using standard security protocols, NI Wi-Fi DAQ devices make it easy to add wireless measurements to existing IT networks safely.

Recommended Software

NI Wi-Fi DAQ devices use the same NI-DAQmx API as hundreds of other NI PCI, PXI, and USB DAQ devices, so incorporating an NI Wi-Fi 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 measurement services software speeds up your development with features including the following:

- A configuration-based interface to create fast and accurate measurements with no programming using the DAQ Assistant
- Automatic code generation to create your application in LabVIEW; LabWindows/CVI; LabVIEW SignalExpress; and C#, Visual Studio .NET, ANSI C/C++, or Visual Basic using Measurement Studio
- Multithreaded streaming technology for 1,000 times performance improvements
- More than 3,000 free software downloads that are available at ni.com/zone to jump-start your project
- A single programming interface for hundreds of PCI, PXI, USB, Ethernet, and Wi-Fi data acquisition hardware devices

NI Wi-Fi DAQ devices are compatible with the following versions (or later) of NI application software: LabVIEW 7.1, 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.

Ordering Information

NI WLS-9163 carrier only 780495-01

Combined NI WLS-9163 and C Series Module Kits

NI WLS-9211 780496-01
NI WLS-9215 780497-01
NI WLS-9215 BNC 780498-01
NI WLS-9219 780499-01
NI WLS-9234 780507-01
NI WLS-9237 780500-01

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 WAP-3701, North America 780036-01
NI WAP-3701, International 780037-01

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