High-Performance M Series Multifunction DAQ for USB – 16-Bit, up to 1.25 MS/s, Integrated BNC Connectivity

NI USB-6221 BNC, NI USB-6229 BNC, NI USB-6251 BNC, NI USB-6259 BNC

- Up to 16 differential analog inputs at 16 bits, 1.25 MS/s (1 MS/s scanning)
- Up to 4 analog outputs at 16 bits, 2.8 MS/s (2 µs full-scale settling)
- Up to 48 TTL/CMOS digital I/O lines (up to 32 hardware-timed at up to 1 MHz)
- Two 32-bit, 80 MHz counter/timers
- Analog and digital triggering
- NI-PGIA 2 and NI-MCal calibration technology for improved measurement accuracy
- NI signal streaming for 4 high-speed data streams on USB
- Power supply included
- 1-year warranty
- Additional warranty and calibration services available

Operating Systems
- Windows Vista (32- and 64-bit)/XP/2000

Recommended Software
- LabVIEW
- LabVIEW SignalExpress
- LabWindows™/CVI
- Measurement Studio

Other Compatible Software
- C#, Visual Basic.NET
- ANSI C/C++

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

Table 1. Selection Guide for High-Performance M Series Multifunction DAQ for USB with BNC Connectivity

<table>
<thead>
<tr>
<th>Family</th>
<th>Bus</th>
<th>Analog Inputs</th>
<th>Resolution (bits)</th>
<th>Max Rate (S/s)</th>
<th>Analog Outputs</th>
<th>Analog Output Resolution (bits)</th>
<th>Max Rate (S/s)</th>
<th>Range (V)</th>
<th>Digital I/O</th>
<th>Clocked DIO</th>
<th>Counter</th>
<th>Resolution (bits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI 6251 BNC</td>
<td>USB</td>
<td>8</td>
<td>16</td>
<td>1.25 M</td>
<td>2</td>
<td>16</td>
<td>2.86 M</td>
<td>±10</td>
<td>24</td>
<td>8, up to 1 MHz³</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>NI 6259 BNC</td>
<td>USB</td>
<td>16</td>
<td>16</td>
<td>1.25 M</td>
<td>4</td>
<td>16</td>
<td>2.86 M</td>
<td>±10</td>
<td>48</td>
<td>32, up to 1 MHz³</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>NI 6221 BNC</td>
<td>USB</td>
<td>8</td>
<td>16</td>
<td>250 k</td>
<td>2</td>
<td>16</td>
<td>833 k</td>
<td>±10</td>
<td>24</td>
<td>8, up to 1 MHz³</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>NI 6229 BNC</td>
<td>USB</td>
<td>16</td>
<td>16</td>
<td>250 k</td>
<td>4</td>
<td>16</td>
<td>833 k</td>
<td>±10</td>
<td>48</td>
<td>32, up to 1 MHz³</td>
<td>2</td>
<td>32</td>
</tr>
</tbody>
</table>

³Correlated DIO can be clocked at up to 1 MHz across the USB bus and up to 10 MHz using onboard regeneration.

Overview and Applications

With recent bandwidth improvements and new innovations from National Instruments, USB has evolved into a core bus of choice for measurement and automation applications. National Instruments M Series devices for USB deliver high-performance data acquisition in an easy-to-use and portable form factor through USB ports on laptop computers and other portable computing platforms. NI designed a new and innovative patent-pending NI signal streaming technology that enables sustained bidirectional high-speed data streams on USB. The new technology, combined with advanced external synchronization and isolation, helps engineers and scientists achieve high-performance applications on USB.

NI M Series high-performance multifunction data acquisition (DAQ) modules for USB are optimized for superior accuracy at fast sampling rates. They provide an onboard NI-PGIA 2 amplifier designed for fast settling times at high scanning rates, ensuring 16-bit accuracy even when measuring all available channels at maximum speed. All high-performance devices have a minimum of 16 analog inputs, 24 digital I/O lines, seven programmable input ranges, analog and digital triggering, and two counter/timers. High-speed NI USB-625x and USB-622x M Series devices have two-year and one-year calibration intervals, respectively. USB M Series devices are ideal for test, control, and design applications including:

- Portable data logging – log environmental or voltage data quickly and easily
- Field-monitoring applications
- Embedded OEM applications
- In-vehicle data acquisition
- Academic lab use – academic discounts available

NI Signal Streaming

To optimize the use of the Universal Serial Bus (USB) and deliver high-performance data acquisition, National Instruments created several key technologies to push the limits of USB throughput and latency. NI signal streaming combines three innovative hardware- and software-level design elements to enable sustained high-speed and bidirectional data streams over USB. For more information, visit ni.com/usb.

NI USB-6221 BNC, NI USB-6229 BNC, NI USB-6251 BNC, NI USB-6259 BNC
High-Performance M Series Multifunction DAQ for USB – 16-Bit, up to 1.25 MS/s, Integrated BNC Connectivity

USB M Series for Test
You can use M Series high-speed analog inputs and 10 MHz digital lines with NI signal conditioning for applications including test, component characterization, and sensor measurement. High-speed USB-625x M Series devices are compatible with the NI SCC signal conditioning platform, providing amplification filtering and power for virtually every type of sensor. This platform is also compliant with IEEE 1451.4 smart transducer electronic data sheet (TEDS) sensors, which offer digital storage for sensor data sheet information.

USB M Series multifunction DAQ devices also complement existing test systems that need additional measurement channels. For higher-channel-count signal conditioning on USB, consider the NI CompactDAQ or SCXI platform.

USB M Series for Control
USB M Series digital lines can drive 24 mA for relay and actuator control. By clocking the digital lines as fast as 10 MHz (with onboard regeneration), you can use these lines for pulse-width modulation (PWM) to control valves, motors, fans, lamps, and pumps. With four waveform analog outputs, two 80 MHz counter/timers, and four high-speed data streams on USB, M Series devices can execute multiple control loops simultaneously. High-speed USB-625x M Series devices also offer direct support for encoder measurements, protected digital lines, and digital debounce filters. With up to 80 analog inputs, 32 clocked digital lines, and four analog outputs, you can execute multiple control loops with a single device.

You can also create a complete custom motion controller by combining USB M Series devices with the NI SoftMotion Development Module.

USB M Series for Design
For design applications, you can use a wide range of I/O – from 80 analog inputs to 48 digital lines – to measure and verify prototype designs. USB M Series devices and National Instruments LabVIEW SignalExpress interactive measurement software bring benchtop measurements to the PC. With NI LabVIEW SignalExpress, you can quickly create design verification tests. The fast acquisition and generation rates of high-performance USB M Series high-speed devices along with LabVIEW SignalExpress provide fast design analysis. You can convert your tested and verified LabVIEW SignalExpress projects to LabVIEW applications for immediate M Series DAQ use, and bridge the gap between test, control, and design applications.

USB M Series for OEMs
Shorten your time to market by integrating National Instruments OEM products in your design. Board-only versions of USB M Series DAQ devices are available for OEM applications, with competitive quantity pricing and software customization. The NI OEM Elite Program offers free 30-day trial kits for qualified customers. Visit ni.com/oem for more information.

Recommended Training and Services
All M Series devices are available with additional warranty and calibration services. For new data acquisition programmers, NI recommends the “Data Acquisition: 7 Steps to Success” tutorial kit. This tutorial kit helps shorten development time for data acquisition applications by describing the various stages of getting started with DAQ including system definition, setup, test, and application programming.

Recommended Software
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 National Instruments LabVIEW, LabVIEW SignalExpress, LabWindows/CVI, and Measurement Studio. 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:

- A guide to create fast and accurate measurements with no programming using DAQ Assistant
- Automatic code generation to create your application in LabVIEW; LabWindows/CVI; LabVIEW SignalExpress; C#, Visual Studio .NET, ANSI C/C++, or Visual Basic using Measurement Studio
- Multithreaded streaming technology for 1,000 times performance improvements
- Automatic timing, triggering, and synchronization routing to make advanced applications easy
- More than 3,000 free software downloads to jump-start your project available at ni.com/zone
- Software configuration of all digital I/O features without hardware switches/jumpers
- Single programming interface for analog input, analog output, digital I/O, and counters on hundreds of multifunction DAQ hardware devices
- M Series devices are compatible with the following versions (or later) of NI application software – LabVIEW, LabWindows/CVI, or Measurement Studio versions 7. x or LabVIEW SignalExpress 2.x.
High-Performance M Series Multifunction DAQ for USB –
16-Bit, up to 1.25 MS/s, Integrated BNC Connectivity

Ordering Information
NI USB-6221
  BNC................................................................. 780117-0P
  Screw terminal ............................................. 779808-0P
NI USB-6225
  Screw terminal ............................................. 779973-0P
  Mass terminal .............................................. 779974-0P
NI USB-6229
  BNC................................................................. 780116-0P
  Screw terminal ............................................. 779810-0P
NI USB-6251
  BNC................................................................. 780115-0P
  Screw terminal ............................................. 779627-0P
  Mass terminal .............................................. 779694-0P
NI USB-6255
  Screw terminal ............................................. 779958-0P
  Mass terminal .............................................. 779959-0P
NI USB-6259
  BNC................................................................. 780114-0P
  Screw terminal ............................................. 779628-0P
  Mass terminal .............................................. 779695-0P

Includes NI-DAQmx software.
P is 1 (U.S. 120 VAC); 2 (Swiss 220 VAC); 3 (Australian 240 VAC);
4 (Universal Euro 240 VAC); 6 (United Kingdom 240 VAC); 7 (Japanese 100 VAC).
Includes data acquisition driver software, 1 m USB cable, and AC adapter.

BUY ONLINE at ni.com or CALL 800 813 3693 (U.S.)

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

For complete specifications, see the NI 622x Specifications and the NI 625x Specifications manuals at ni.com/manuals.

Specifications listed below are typical at 25 °C unless otherwise noted.

### Analog Input

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>USB-6221/6251 BNC.................</th>
<th>8 differential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USB-6229/6259 BNC....................</td>
<td>16 differential</td>
</tr>
<tr>
<td>ADC resolution</td>
<td>16 bits</td>
<td></td>
</tr>
<tr>
<td>Sampling rate</td>
<td>USB-6221/6229 BNC .....................</td>
<td>250 kS/s single channel, 250 kS/s multichannel (aggregate)</td>
</tr>
<tr>
<td></td>
<td>USB-6251/6259 BNC .....................</td>
<td>1.25 MS/s single channel, 1.00 MS/s multichannel (aggregate)</td>
</tr>
<tr>
<td>Input coupling</td>
<td>DC</td>
<td></td>
</tr>
<tr>
<td>Input range</td>
<td>USB-6221/6229 BNC .....................</td>
<td>±10, ±5, ±1, ±0.2 V</td>
</tr>
<tr>
<td></td>
<td>USB-6251/6259 BNC .....................</td>
<td>±10, ±5, ±2, ±1, ±0.5, ±0.2, ±0.1 V</td>
</tr>
<tr>
<td>Maximum working voltage for analog inputs</td>
<td>(signal + common mode) ............</td>
<td>±11 V of AI GND</td>
</tr>
<tr>
<td>Input impedance</td>
<td>Device on AI+ to AI GND...........</td>
<td>&gt;10 GΩ in parallel with 100 pF</td>
</tr>
<tr>
<td></td>
<td>AI– to AI GND.......................</td>
<td>&gt;10 GΩ in parallel with 100 pF</td>
</tr>
<tr>
<td></td>
<td>Device off AI+ to AI GND..........</td>
<td>820 Ω</td>
</tr>
<tr>
<td></td>
<td>AI– to AI GND.......................</td>
<td>820 Ω</td>
</tr>
<tr>
<td>Input bias current</td>
<td>±100 pA</td>
<td></td>
</tr>
<tr>
<td>Crosstalk (at 100 kHz)</td>
<td>-75 dB</td>
<td></td>
</tr>
<tr>
<td>Adjacent channels</td>
<td>Nonadjacent channels.............</td>
<td>-90 dB</td>
</tr>
<tr>
<td></td>
<td>USB-6221/6229 BNC .................</td>
<td>-95 dB</td>
</tr>
<tr>
<td>Input FIFO size</td>
<td>4,095 samples</td>
<td></td>
</tr>
<tr>
<td>Scan list memory</td>
<td>4,095 entries</td>
<td></td>
</tr>
<tr>
<td>Data transfers</td>
<td>NI signal streaming on USB, programmed I/O</td>
<td></td>
</tr>
</tbody>
</table>

### Analog Output

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>USB-6221/6251 BNC................</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USB-6229/6259 BNC................</td>
<td>4</td>
</tr>
<tr>
<td>DAC resolution</td>
<td>16 bits</td>
<td></td>
</tr>
<tr>
<td>Maximum update rate</td>
<td>USB-6221/6229 BNC ................</td>
<td>833 kS/s</td>
</tr>
<tr>
<td></td>
<td>2 channels .......................</td>
<td>740 kS/s per channel</td>
</tr>
<tr>
<td></td>
<td>3 channels .......................</td>
<td>666 kS/s per channel</td>
</tr>
<tr>
<td></td>
<td>4 channels .......................</td>
<td>625 kS/s per channel</td>
</tr>
<tr>
<td></td>
<td>USB-6251/6259 BNC ................</td>
<td>2.86 MS/s</td>
</tr>
<tr>
<td></td>
<td>2 channels .......................</td>
<td>2.00 MS/s per channel</td>
</tr>
<tr>
<td></td>
<td>3 channels .......................</td>
<td>1.54 MS/s per channel</td>
</tr>
<tr>
<td></td>
<td>4 channels .......................</td>
<td>1.25 MS/s per channel</td>
</tr>
<tr>
<td>Timing accuracy</td>
<td>50 ppm of sample rate</td>
<td></td>
</tr>
<tr>
<td>Timing resolution</td>
<td>50 ns</td>
<td></td>
</tr>
<tr>
<td>Output range</td>
<td>±10 V</td>
<td></td>
</tr>
<tr>
<td>Output coupling</td>
<td>DC</td>
<td></td>
</tr>
<tr>
<td>Output impedance</td>
<td>0.2 Ω</td>
<td></td>
</tr>
<tr>
<td>Output current drive</td>
<td>±5 mA</td>
<td></td>
</tr>
<tr>
<td>Output FIFO size</td>
<td>8,191 samples shared</td>
<td></td>
</tr>
<tr>
<td>Data transfers</td>
<td>NI signal streaming on USB, programmed I/O</td>
<td></td>
</tr>
</tbody>
</table>

### Calibration (AI and AO)

<table>
<thead>
<tr>
<th>Recommended warm-up time</th>
<th>15 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration interval</td>
<td></td>
</tr>
<tr>
<td>USB-6221/6229 BNC.........</td>
<td>1 year</td>
</tr>
<tr>
<td>USB-6251/6259 BNC.........</td>
<td>2 years</td>
</tr>
</tbody>
</table>

### Digital I/O/PFI

#### Static Characteristics

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>USB-6221/6251 BNC ................</th>
<th>24 total, 8 (P0.&lt;0..7&gt;), 16 (PFI &lt;0..7&gt;/P1, PFI &lt;8..15&gt;/P2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USB-6229/6259 BNC .................</td>
<td>48 total, 32 (P0.&lt;0..31&gt;), 16 (PFI &lt;0..7&gt;/P1, PFI &lt;8..15&gt;/P2)</td>
</tr>
<tr>
<td>Ground reference</td>
<td>D GND</td>
<td></td>
</tr>
<tr>
<td>Direction control</td>
<td>Each terminal individually programmable as input or output</td>
<td></td>
</tr>
<tr>
<td>Pull-down resistor</td>
<td>50 kΩ typical, 20 kΩ minimum</td>
<td></td>
</tr>
</tbody>
</table>

### Analog Triggers (USB-625x Devices Only)

<table>
<thead>
<tr>
<th>Functions</th>
<th>Start Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reference Trigger</td>
</tr>
<tr>
<td></td>
<td>Pause Trigger</td>
</tr>
<tr>
<td></td>
<td>Sample Clock</td>
</tr>
<tr>
<td></td>
<td>Convert Clock</td>
</tr>
<tr>
<td></td>
<td>Sample Clock Timebase</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modes</th>
<th>Analog edge triggering, analog edge triggering with hysteresis, and analog window triggering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>10 bits, 1 in 1,024</td>
</tr>
</tbody>
</table>

Downloaded from Arrow.com.
### Waveform Characteristics (Port 0 Only)

<table>
<thead>
<tr>
<th>Terminals used</th>
<th>Port 0 (P0.&lt;0..7&gt;)</th>
<th>Port 0 (P0.&lt;0..31&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB-6221/6251 BNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB-6229/6259 BNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port/sample size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB-6221/6251 BNC</td>
<td>Up to 8 bits</td>
<td></td>
</tr>
<tr>
<td>USB-6229/6259 BNC</td>
<td>Up to 32 bits</td>
<td></td>
</tr>
<tr>
<td>Waveform generation (DO) FIFO</td>
<td>2,047 samples</td>
<td></td>
</tr>
<tr>
<td>Waveform acquisition (DI) FIFO</td>
<td>2,047 samples</td>
<td></td>
</tr>
<tr>
<td>DI sample clock frequency</td>
<td>0 to 1 MHz, system dependent</td>
<td></td>
</tr>
<tr>
<td>DO sample clock frequency</td>
<td>0 to 10 MHz</td>
<td></td>
</tr>
<tr>
<td>Regenerate from FIFO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Streaming from memory</td>
<td>0 to 1 MHz, system dependent</td>
<td></td>
</tr>
<tr>
<td>Data transfers</td>
<td>NI signal streaming on USB, programmed I/O</td>
<td></td>
</tr>
</tbody>
</table>

### PFI/Port 1/Port 2 Functionality

- **Functionality**: Static digital input, static digital output, timing input, timing output
- **Timing output sources**: Many AI, AO, counter, DI, DO timing signals
- **Debounce filter settings**: 125 ns, 6.425 µs, 2.56 ms, disable; high and low transitions; selectable per input

### General-Purpose Counter/Timers

- **Number of counter/timers**: 2
- **Counter measurements**: Edge counting, pulse, semiperiod, period, two-edge separation
- **Position measurements**: X1, X2, X4 quadrature encoding with Channel Z reloading; two-pulse encoding
- **Output applications**: Pulse, pulse train with dynamic updates, frequency division, equivalent time sampling
- **Internal base clocks**: 80 MHz, 20 MHz, 0.1 MHz
- **Base clock accuracy**: 50 ppm
- **Inputs**: Gate, Source, HW_Arm, Aux, A, B, Z, Up_Down
- **Data transfers**: NI signal streaming on USB, programmed I/O

### Frequency Generator

- **Number of channels**: 1
- **Base clocks**: 10 MHz, 100 kHz
- **Divisors**: 1 to 16
- **Base clock accuracy**: 50 ppm
- **Output can be available on any PFI or RTSI terminal**

### Phase-Locked Loop (PLL)

- **Number of PLLs**: 1
- **Reference signal**: PXI_STAR, PXI_CLK10, RTSI <0..7>
- **Output of PLL**: 80 MHz timebase; other signals derived from 80 MHz timebase including 20 MHz and 100 kHz timebases

### External Digital Triggers

- **Source**: Any PFI, RTSI, PXI_TRIG, PXI_STAR
- **Polarity**: Software-selectable for most signals
- **Analog input function**: Start Trigger, Reference Trigger, Pause Trigger, Sample Clock, Convert Clock, Sample Clock Timebase
- **Analog output function**: Start Trigger, Pause Trigger, Sample Clock, Sample Clock Timebase
- **Counter/timer functions**: Gate, Source, HW_Arm, Aux, A, B, Z, Up_Down
- **Digital waveform generation (DO) function**: Sample Clock
- **Digital waveform acquisition (DI) function**: Sample Clock

### Bus Interface

- **USB**: Hi-Speed USB or full-speed USB
- **NI signal streaming**: 4 high-speed data streams; can be used for analog input, analog output, digital input, digital output, counter/timer 0, counter/timer 1

### Power Requirements

- **USB power supply requirements**: 11 to 30 VDC, 20 W

### Power Limits

- **+5 V terminal**: 1 A max
- **P0/PFI/P1/P2 and +5 V terminals combined**: 2 A max
- **Power supply fuse**: 2 A, 250 V
High-Performance M Series Multifunction DAQ for USB – 16-Bit, up to 1.25 MS/s, Integrated BNC Connectivity

Physical Requirements

Enclosure dimensions
(includes connectors).............. 28.6 by 17 by 6.9 cm
(11.25 by 6.7 by 2.7 in.)

Weight......................................... 2.49 kg (5 lb, 8 oz)

I/O connector
USB-6221 BNC........................ 20 BNCs and 30 screw terminals
USB-6229 BNC........................ 30 BNCs and 60 screw terminals
USB-6251 BNC........................ 21 BNCs and 30 screw terminals
USB-6259 BNC........................ 32 BNCs and 60 screw terminals

Environmental

Operating temperature............. 0 to 45 °C
Storage temperature............... -20 to 70 °C
Humidity................................. 10 to 90% RH, noncondensing
Maximum altitude..................... 2,000 m
Pollution degree (indoor use only)....2

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:
• IEC 61010-1, EN 61010-1
• UL 61010-1, CSA 61010-1

Note: For UL and other safety certifications, refer to the product label or visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

This product is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:
• EN 61326 EMC requirements; Minimum Immunity
• EN 55011 Emissions; Group 1, Class A
• CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A

Note: For EMC compliance, operate this device according to product documentation.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:
• 2006/95/EC; Low-Voltage Directive (safety)
• 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

Note: Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers: At the end of their life cycle, all products must be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit [ni.com/environment/weee.htm](http://ni.com/environment/weee.htm).

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial not only to the environment but also to NI customers.

For additional environmental information, refer to the NI and the Environment Web page at [ni.com/environment](http://ni.com/environment). This page contains the environmental regulations and directives with which NI complies, as well as any other environmental information not included in this document.

Management Methods for Controlling Pollution Caused by Electronic Information Products Regulation (China RoHS)

中国RoHS (China RoHS)

NI Services and Support

NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit ni.com/services.

Local Sales and Technical Support
In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. NI delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to 14,000 measurement and automation professionals within NI Developer Exchange forums. Find immediate answers to your questions at ni.com/support.

We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit ni.com/ssp.

Training and Certification
NI training is the fastest, most certain route to productivity with our products. NI training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We schedule instructor-led courses in cities worldwide, or we can hold a course at your facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using NI products. Visit ni.com/training.

Professional Services
Our NI Professional Services team is composed of NI applications and systems engineers and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

OEM Support
We offer design-in consulting and product integration assistance if you want to use our products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Hardware Services
NI Factory Installation Services
NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with ni.com/pxiadvisor.

Calibration Services
NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit ni.com/calibration.

Repair and Extended Warranty
NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit ni.com/services.