

# NI 6115/6120 Specifications

This document lists the specifications for the NI 6115/6120. For the most current edition of this document, refer to [ni.com/manuals](http://ni.com/manuals). Refer to the *DAQ Getting Started Guide* for more information about accessing documents on the NI-DAQ media.

## Definitions

*Warranted* specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

The following characteristic specifications describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the performance met by a majority of models.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are *Typical* unless otherwise noted.

The following specifications are typical at 25 °C unless otherwise noted.

## Analog Input

### Input Characteristics

Number of channels..... 4 pseudodifferential

Type of ADC

Resolution

NI 6115..... 12 bits, 1 in 4,096

NI 6120..... 16 bits, 1 in 65,536

Pipeline

NI 6115..... 2

NI 6120..... 0

Sampling rate

Maximum

NI 6115..... 10 MS/s

NI 6120..... 800 kS/s

Minimum

NI 6115..... 20 kS/s

NI 6120..... No minimum



|                                                       |                                                                                 |
|-------------------------------------------------------|---------------------------------------------------------------------------------|
| Input impedance                                       |                                                                                 |
| AI + to AI -                                          |                                                                                 |
| Range $\leq \pm 10$ V                                 | 1 M $\Omega$ in parallel with 100 pF                                            |
| Range $> \pm 10$ V                                    | 10 k $\Omega$ in parallel with 40 pF                                            |
| AI - to AI GND                                        |                                                                                 |
| NI 6115                                               | 100 G $\Omega$ in parallel with 10 nF                                           |
| NI 6120                                               | 100 G $\Omega$ in parallel with 100 pF                                          |
| AI + to AI GND                                        |                                                                                 |
| NI 6115                                               | 100 G $\Omega$ in parallel with 100 pF                                          |
| NI 6120                                               | 100 G $\Omega$ in parallel with 100 pF                                          |
| Input bias current                                    | $\pm 300$ pA                                                                    |
| Input offset current                                  | $\pm 200$ pA                                                                    |
| Input coupling                                        | DC/AC                                                                           |
| Maximum working voltage for all analog input channels |                                                                                 |
| Positive input (AI +)                                 | $\pm 42$ V for $\pm 20$ V and $\pm 42$ V ranges;<br>$\pm 11$ V for other ranges |
| Negative input (AI -)                                 | $\pm 2.5$ V                                                                     |
| Overvoltage protection                                |                                                                                 |
| (AI +, AI -)                                          | $\pm 42$ V                                                                      |
| Input current during overvoltage conditions           |                                                                                 |
|                                                       | $\pm 20$ mA, maximum                                                            |
| Input FIFO size                                       | 16 MS or 32 MS                                                                  |
| Data transfers                                        | DMA, interrupts, programmed I/O                                                 |
| DMA mode                                              | Scatter-gather                                                                  |

DC Transfer Characteristics

|                    |                                       |
|--------------------|---------------------------------------|
| INL                |                                       |
| NI 6115            | $\pm 0.35$ LSB<br>$\pm 1$ LSB maximum |
| NI 6120            | $\pm 2.5$ LSB maximum                 |
| DNL                |                                       |
| NI 6115            | $\pm 0.25$ LSB<br>$\pm 1$ LSB maximum |
| NI 6120            | 0.75 LSB<br>no missing codes          |
| Offset, gain error | Refer to Tables 1 and 2 <sup>1</sup>  |

Table 1. NI 6115 Analog Input DC Accuracy Information

| Nominal Range at Full Scale (V) | Absolute Accuracy |        |              |                           |          |                   | Relative Accuracy                     |          |
|---------------------------------|-------------------|--------|--------------|---------------------------|----------|-------------------|---------------------------------------|----------|
|                                 | % of Reading      |        | Offset* (mV) | Noise + Quantization (mV) |          | Temp Drift (%/°C) | Absolute Accuracy at Full Scale (±mV) |          |
|                                 | 24 Hours          | 1 Year |              | Single Point              | Averaged |                   | Single Point                          | Averaged |
| ±42                             | 0.35              | 0.35   | 33           | 42                        | 3.6      | 0.023             | 48                                    | 4.8      |
| ±20                             | 0.27              | 0.27   | 13           | 17                        | 1.4      | 0.023             | 19                                    | 1.9      |
| ±10                             | 0.026             | 0.028  | 6.7          | 8.3                       | 0.72     | 0.0006            | 10                                    | 1.0      |
| ±5                              | 0.016             | 0.018  | 3.4          | 4.2                       | 0.36     | 0.0006            | 4.8                                   | 0.48     |
| ±2                              | 0.036             | 0.038  | 1.3          | 1.8                       | 0.16     | 0.0006            | 2.0                                   | 0.20     |
| ±1                              | 0.043             | 0.045  | 0.68         | 1.1                       | 0.09     | 0.0006            | 1.2                                   | 0.12     |
| ±0.5                            | 0.058             | 0.060  | 0.35         | 0.69                      | 0.061    | 0.0006            | 0.80                                  | 0.080    |
| ±0.2                            | 0.10              | 0.11   | 0.15         | 0.43                      | 0.039    | 0.0006            | 0.51                                  | 0.051    |

\* The offset might degrade by 2.25 LSB with filter enabled.

<sup>1</sup> Accuracies are valid for measurements following an internal calibration. Averaged numbers assume dithering and averaging of 100 single-channel readings. Measurement accuracies are listed for operational temperatures within ±1 °C of internal calibration temperature and ±10 °C of external or factory-calibration temperature.

Table 2. NI 6120 Analog Input DC Accuracy Information

| Nominal Range at Full Scale (V) | Absolute Accuracy |        |              |                           |          |                   |                                       | Relative Accuracy |          |
|---------------------------------|-------------------|--------|--------------|---------------------------|----------|-------------------|---------------------------------------|-------------------|----------|
|                                 | % of Reading      |        | Offset* (μV) | Noise + Quantization (μV) |          | Temp Drift (%/°C) | Absolute Accuracy at Full Scale (±mV) | Resolution (μV)   |          |
|                                 |                   |        |              | Single Point              | Averaged |                   |                                       |                   |          |
|                                 | 24 Hours          | 1 Year |              |                           |          |                   |                                       | Single Point      | Averaged |
| ±42                             | 0.16              | 0.16   | 8,400        | 6,100                     | 550      | 0.011             | 87                                    | 7,200             | 720      |
| ±20                             | 0.14              | 0.14   | 3,300        | 2,400                     | 220      | 0.011             | 31                                    | 2,900             | 290      |
| ±10                             | 0.033             | 0.034  | 1,700        | 1,200                     | 110      | 0.0006            | 5.1                                   | 1,400             | 140      |
| ±5                              | 0.035             | 0.037  | 840          | 750                       | 69       | 0.0006            | 2.7                                   | 900               | 90       |
| ±2                              | 0.039             | 0.041  | 370          | 340                       | 31       | 0.0006            | 1.2                                   | 410               | 41       |
| ±1                              | 0.077             | 0.079  | 280          | 200                       | 18       | 0.0006            | 1.1                                   | 240               | 24       |
| ±0.5                            | 0.10              | 0.10   | 180          | 110                       | 10       | 0.0006            | 0.69                                  | 130               | 13       |
| ±0.2                            | 0.12              | 0.12   | 93           | 54                        | 5.1      | 0.0006            | 0.34                                  | 68                | 6.8      |

\* The offset might degrade by 8 LSB with filter enabled and by 1 LSB when sampling above 500 kS/s.

\*The offset might degrade by 8 LSB with filter enabled and by 1 LSB when sampling above 500 kS/s.

Dynamic Characteristics

Analog filters

Number

- NI 6115 ..... 2
- NI 6120 ..... 1

Type

- NI 6115 ..... 3-pole Bessel
- NI 6120 ..... 5-pole Bessel

Frequency

- NI 6115 ..... 50 kHz and 500 kHz (software-enabled)
- NI 6120 ..... 100 kHz  
(software-enabled)

Crosstalk ..... -80 dB, DC to 100 kHz

Table 3. NI 6115 Analog Input Dynamic Characteristics

| Input Range                                                                                                                                                                                                                                                               | Bandwidth* (MHz) | SFDR Typ† (dB) | CMRR‡ (dB) | System Noise** (LSB <sub>rms</sub> ) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|------------|--------------------------------------|
| ±42 V                                                                                                                                                                                                                                                                     | 5.5              | 78             | 34         | 0.35                                 |
| ±20 V                                                                                                                                                                                                                                                                     | 4.4              | 78             | 40         | 0.45                                 |
| ±10 V                                                                                                                                                                                                                                                                     | 7.2              | 81             | 46         | 0.35                                 |
| ±5 V                                                                                                                                                                                                                                                                      | 4.8              | 81             | 52         | 0.35                                 |
| ±2 V                                                                                                                                                                                                                                                                      | 4.8              | 85             | 60         | 0.45                                 |
| ±1 V                                                                                                                                                                                                                                                                      | 4.4              | 85             | 66         | 0.60                                 |
| ±500 mV                                                                                                                                                                                                                                                                   | 4.4              | 85             | 70         | 0.80                                 |
| ±200 mV                                                                                                                                                                                                                                                                   | 4.1              | 81             | 72         | 1.3                                  |
| <div><div>* -3 dB frequency for input amplitude at 96% of the input range (-0.3 dB)</div><div>† Measured at 100 kHz with twelfth-order bandpass filter after signal source</div><div>‡ DC to 60 Hz</div><div>** LSB<sub>rms</sub>, not including quantization</div></div> |                  |                |            |                                      |

Table 4. NI 6120 Analog Input Dynamic Characteristics

| Input Range | Bandwidth* (MHz) | SFDR Typ† (dB) | CMRR‡ (dB) | System Noise** (LSB <sub>rms</sub> ) |
|-------------|------------------|----------------|------------|--------------------------------------|
| ±42 V       | 1.0              | 95             | 60         | 1.2                                  |
| ±20 V       | 1.0              | 96             | 68         | 1.2                                  |
| ±10 V       | 1.0              | 95             | 76         | 1.2                                  |
| ±5 V        | 1.0              | 95             | 82         | 1.5                                  |
| ±2 V        | 1.0              | 96             | 90         | 1.7                                  |
| ±1 V        | 1.0              | 94             | 95         | 2.0                                  |
| ±500 mV     | 1.0              | 90             | 100        | 2.2                                  |
| ±200 mV     | 1.0              | 85             | 105        | 2.8                                  |

\* -3 dB frequency for input amplitude at 10% of the input range (-20 dB)

† Measured at 100 kHz with twelfth-order bandpass filter after signal source

‡ DC to 60 Hz

\*\* LSB<sub>rms</sub> not including quantization

Figure 1. NI 6115 Total Harmonic Distortion Plus Noise (THD+N)

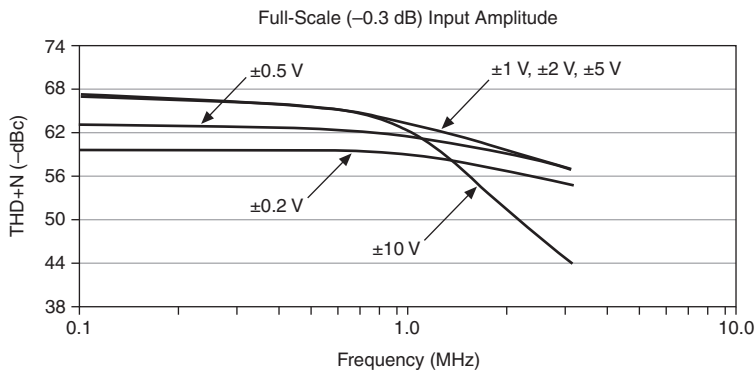


Figure 2. NI 6120 Total Harmonic Distortion Plus Noise (THD+N)

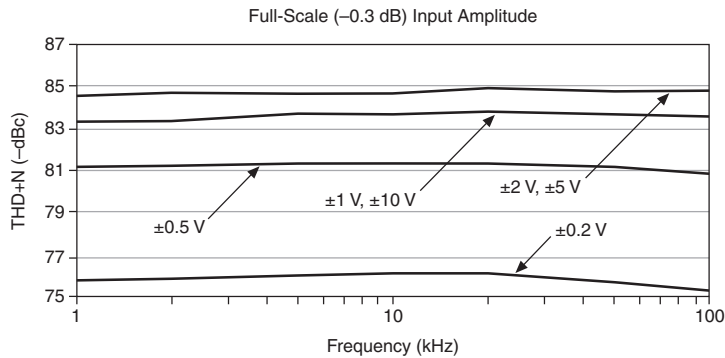


Figure 3. NI 6115 High-Voltage THD+N

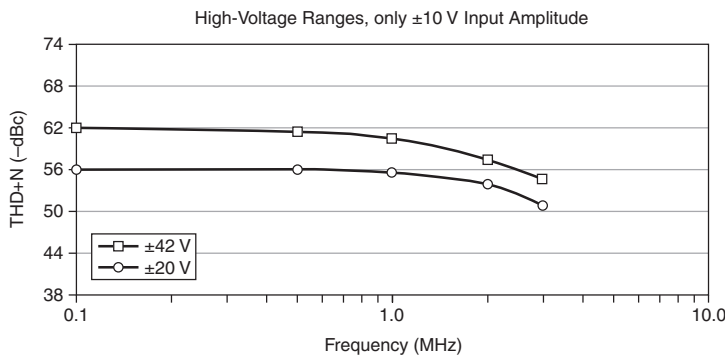


Figure 4. NI 6120 High-Voltage THD+N

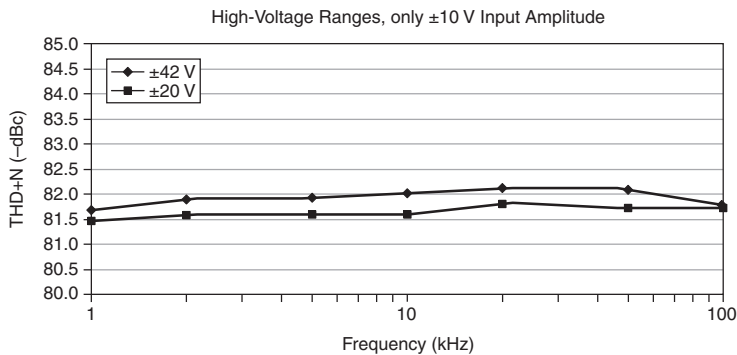


Figure 5. NI 6115 THD+N with Filters

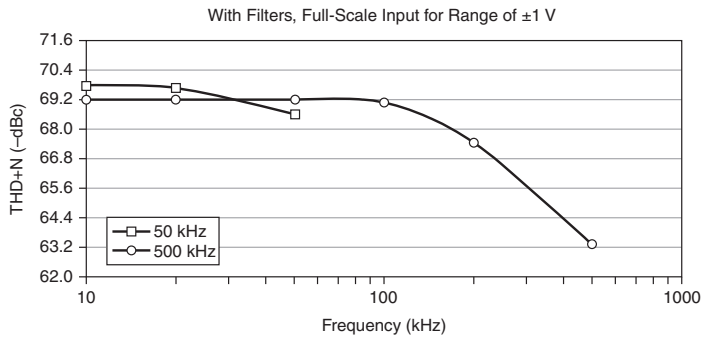
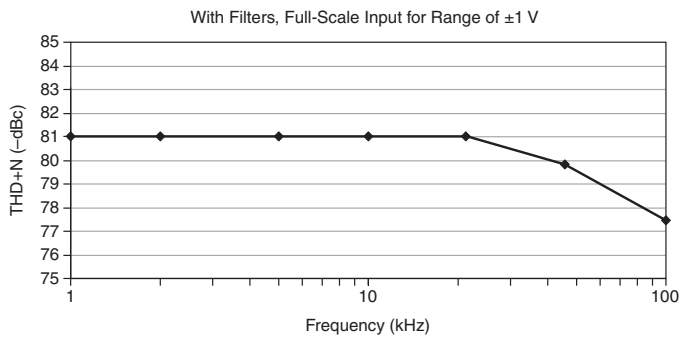


Figure 6. NI 6120 THD+N with Filters



Stability

Recommended warm-up time ..... 15 min

Calibration interval ..... 1 year

Offset temperature coefficient

Pregain

NI 6115 .....  $\pm 12 \mu\text{V}/^\circ\text{C}$

NI 6120 .....  $\pm 1.5 \mu\text{V}/^\circ\text{C}$

Postgain

NI 6115 .....  $\pm 64 \mu\text{V}/^\circ\text{C}$

NI 6120 .....  $\pm 2.1 \text{ LSB}/^\circ\text{C}$

Gain temperature coefficient

NI 6115 .....  $\pm 21.3 \text{ ppm}/^\circ\text{C}$

NI 6120 .....  $\pm 22.2 \text{ ppm}/^\circ\text{C}$



# Analog Output

## Output Characteristics

|                    |                                         |
|--------------------|-----------------------------------------|
| Number of channels | 2 voltage                               |
| Resolution         |                                         |
| NI 6115            | 12 bits, 1 in 4,096                     |
| NI 6120            | 16 bits, 1 in 65,536                    |
| Max update rate    |                                         |
| 1 channel          | 4 MS/s, system dependent <sup>1</sup>   |
| 2 channel          | 2.5 MS/s, system dependent <sup>1</sup> |
| Output buffer size | 16 MS or 32 MS                          |
| Data transfers     | DMA, interrupts,<br>programmed I/O      |
| DMA modes          | Scatter-gather                          |

## DC Transfer Characteristics

|                    |                             |
|--------------------|-----------------------------|
| INL                |                             |
| NI 6115            | ±0.5 LSB<br>±2 LSB maximum  |
| NI 6120            | ±0.35 LSB<br>±1 LSB maximum |
| DNL                |                             |
| NI 6115            | ±0.25 LSB<br>±1 LSB maximum |
| NI 6120            | ±0.2 LSB<br>±1 LSB maximum  |
| Offset, gain error |                             |
| NI 6115            | Refer to Table 5            |
| NI 6120            | Refer to Table 6            |

Table 5. NI 6115 Analog Output DC Accuracy Information

| Nominal Range at Full Scale (V) | Absolute Accuracy |         |        |             |                   | Relative Accuracy                |                             |
|---------------------------------|-------------------|---------|--------|-------------|-------------------|----------------------------------|-----------------------------|
|                                 | % of Reading      |         |        | Offset (mV) | Temp Drift (%/°C) | Absolute Acc. at Full Scale (mV) | Theoretical Resolution (mV) |
|                                 | 24 Hours          | 90 Days | 1 Year |             |                   |                                  |                             |
| ±10                             | 0.045             | 0.047   | 0.049  | 8.9         | 0.0008            | 14                               | 4.9                         |

<sup>1</sup> Update rates above 1 MS/s may degrade the analog output slew rate.

Table 6. NI 6120 Analog Output DC Accuracy Information

| Nominal Range at Full Scale (V) | Absolute Accuracy |         |        |             |                   | Relative Accuracy                |                             |
|---------------------------------|-------------------|---------|--------|-------------|-------------------|----------------------------------|-----------------------------|
|                                 | % of Reading      |         |        | Offset (μV) | Temp Drift (%/°C) | Absolute Acc. at Full Scale (mV) | Theoretical Resolution (μV) |
|                                 | 24 Hours          | 90 Days | 1 Year |             |                   |                                  |                             |
| ±10                             | 0.051             | 0.052   | 0.053  | 1,900       | 0.0006            | 6.7                              | 310                         |

Voltage Output

Ranges.....±10 V

Output coupling .....DC

Output impedance .....50 Ω ±5%

Current drivability.....Any passive load

Protection .....Short-circuit to ground

Power-on output voltage  
(before software loads calibration values)

NI 6115 .....±400 μV

NI 6120 .....±80 μV

Initial power-up glitch

Magnitude .....±2 V

Duration .....200 ms

Dynamic Characteristics

Slew rate

NI 6115 .....130 V/μs

NI 6120 .....15 V/μs

Noise

NI 6115 .....600 μV<sub>RMS</sub>, DC to 5 MHz

NI 6120 .....100 μV<sub>RMS</sub>, DC to 1 MHz

Glitch energy at midscale transition

NI 6115 .....±30 mV for 1 μs

NI 6120 .....±10 mV for 1 μs

Settling time

NI 6115 .....1.3 μs to ±1 LSB

NI 6120 .....4 μs to ±1 LSB

Stability

Offset temperature coefficient  
NI 6115 .....±35 µV/°C  
NI 6120 .....±35 µV/°C

Gain temperature coefficient  
NI 6115 .....±56.9 ppm/°C  
NI 6120 .....±6.5 ppm/°C

Calibration

Level ..... 5.000 V (±2.5 mV)  
(actual value stored in EEPROM)

Temperature coefficient .....±2.0 ppm/°C maximum

Long-term stability .....±6 ppm/√1,000 h

Digital I/O

Number of channels ..... 8 input/output

Compatibility ..... TTL/CMOS

Table 7. Digital Logic Levels

| Level                                             | Min    | Max     |
|---------------------------------------------------|--------|---------|
| Input low voltage                                 | 0.0 V  | 0.8 V   |
| Input high voltage                                | 2.0 V  | 5.0 V   |
| Input low current (V <sub>in</sub> = 0 V)         | —      | -320 µA |
| Input high current (V <sub>in</sub> = 5 V)        | —      | 10 µA   |
| Output low voltage<br>(I <sub>OL</sub> = 24 mA)   | —      | 0.4 V   |
| Output high voltage<br>(I <sub>OH</sub> = -13 mA) | 4.35 V | —       |

Power-on state ..... Input (high-impedance)

Data transfers .....DMA, interrupts, programmed I/O

Input buffer ..... 2,048 bytes

Output buffer ..... 2,048 bytes

Transfer rate (1 word = 8 bits) ..... 10 Mwords/s

# Timing I/O

|                                 |                                                 |
|---------------------------------|-------------------------------------------------|
| Number of channels .....        | 2 up/down counter/timers,<br>1 frequency scaler |
| Resolution                      |                                                 |
| Counter/timers .....            | 24 bits                                         |
| Frequency scaler .....          | 4 bits                                          |
| Compatibility .....             | TTL/CMOS                                        |
| Base clocks available           |                                                 |
| Counter/timers .....            | 20 MHz, 100 kHz                                 |
| Frequency scaler .....          | 10 MHz, 100 kHz                                 |
| Base clock accuracy .....       | ±0.01%                                          |
| Max source frequency .....      | 20 MHz                                          |
| Min source pulse duration ..... | 10 ns, edge-detect mode                         |
| Min gate pulse duration .....   | 10 ns, edge-detect mode                         |
| Data transfers .....            | DMA, interrupts,<br>programmed I/O              |
| DMA modes .....                 | Scatter-gather                                  |

# Triggers

## Analog Trigger

|                         |                                                                         |
|-------------------------|-------------------------------------------------------------------------|
| Source .....            | All analog input channels,<br>external trigger<br>(PFI 0/AI START TRIG) |
| Level                   |                                                                         |
| Internal .....          | ± full-scale                                                            |
| External .....          | ±10 V                                                                   |
| Slope .....             | Positive or negative (software-selectable)                              |
| Resolution              |                                                                         |
| NI 6115 .....           | 8 bits, 1 in 256                                                        |
| NI 6120 .....           | 12 bits, 1 in 4,096                                                     |
| Hysteresis .....        | Programmable                                                            |
| Bandwidth (-3 dB) ..... | 5 MHz internal/external                                                 |

External input (PFI 0/AI START TRIG)

|                 |                                                                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Impedance.....  | 10 kΩ                                                                                                                                                           |
| Coupling .....  | AC/DC                                                                                                                                                           |
| Protection..... | -0.5 V to (V <sub>CC</sub> + 0.5) V when configured as a digital signal,<br>±35 V when configured as an analog trigger signal or disabled,<br>±35 V powered off |

Digital Trigger

|                     |                        |
|---------------------|------------------------|
| Compatibility ..... | TTL                    |
| Response .....      | Rising or falling edge |
| Pulse width .....   | 10 ns min              |

RTSI Trigger Lines (PCI Only)

|                            |   |
|----------------------------|---|
| Trigger lines <0..6> ..... | 7 |
| RTSI clock .....           | 1 |

PXI Trigger Bus (PXI Only)

|                            |   |
|----------------------------|---|
| Trigger lines <0..6> ..... | 7 |
| Star trigger .....         | 1 |

Bus Interface

|            |               |
|------------|---------------|
| Type ..... | Master, slave |
|------------|---------------|

Power Requirement

|                                       |                               |
|---------------------------------------|-------------------------------|
| +5 VDC (±5%)                          |                               |
| NI 6115 .....                         | 2.2 A                         |
| NI 6120 .....                         | 3.0 A                         |
| +3.3 V .....                          | 0.8 A                         |
| Power available at I/O connector..... | +4.65 VDC to +5.25 VDC at 1 A |

# Physical

Dimensions (not including connectors)

|                       |                                           |
|-----------------------|-------------------------------------------|
| NI PCI-6115/6120..... | 31.2 cm × 10.6 cm<br>(12.3 in. × 4.2 in.) |
| NI PXI-6115/6120..... | 16 cm × 10 cm<br>(6.3 in. × 3.9 in.)      |
| I/O connector .....   | 68-pin male SCSI-II type                  |

**Note** Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service.

# Maximum Working Voltage

Maximum working voltage refers to the signal voltage plus the common-mode voltage.

|                         |                              |
|-------------------------|------------------------------|
| Channel-to-earth .....  | 42 V, Measurement Category I |
| Channel-to-channel..... | 42 V, Measurement Category I |

**Caution** Do not use for measurements within Categories II, III, and IV.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low voltage sources, and electronics.

**Note** Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

# Environmental

The NI 6115/6120 is intended for indoor use only.

|                             |                              |
|-----------------------------|------------------------------|
| Operating temperature ..... | 0 °C to 50 °C                |
| Storage temperature .....   | -20 °C to 70 °C              |
| Humidity .....              | 10% to 90% RH, noncondensing |
| Maximum altitude.....       | 2,000 m                      |
| Pollution Degree .....      | 2                            |

## Safety

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The NI 6115/6120 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 C22.2 No. 61010-1



**Note** For UL and other safety certifications, refer to the product label or the *Product Certifications and Declarations* section.

## Electromagnetic Compatibility

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This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



**Note** For the standards applied to assess the EMC of this product, refer to the *Product Certifications and Declarations* section.



**Note** For EMC compliance, operate this device with shielded cabling.

## CE Compliance

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This product meets the essential requirements of applicable European Directives as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)

## Product Certifications and Declarations

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Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and 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.

## 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 to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* 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 other environmental information not included in this document.

## Waste Electrical and Electronic Equipment (WEEE)



**EU Customers** At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste and Electronic Equipment, visit [ni.com/environment/weee](http://ni.com/environment/weee).

## 电子信息产品污染控制管理办法（中国 RoHS）



**中国客户** National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china)。(For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china).)



Device Pinout

Figure 7. NI 6115/6120 Pinout

|                     |    |    |                    |
|---------------------|----|----|--------------------|
| AI 0 –              | 34 | 68 | AI 0 +             |
| AI 1 +              | 33 | 67 | AI 0 GND           |
| AI 1 GND            | 32 | 66 | AI 1 –             |
| AI 2 –              | 31 | 65 | AI 2 +             |
| AI 3 +              | 30 | 64 | AI 2 GND           |
| AI 3 GND            | 29 | 63 | AI 3 –             |
| NC                  | 28 | 62 | NC                 |
| NC                  | 27 | 61 | NC                 |
| NC                  | 26 | 60 | NC                 |
| NC                  | 25 | 59 | NC                 |
| NC                  | 24 | 58 | NC                 |
| NC                  | 23 | 57 | NC                 |
| AO 0                | 22 | 56 | NC                 |
| AO 1                | 21 | 55 | AO GND             |
| NC                  | 20 | 54 | AO GND             |
| P0.4                | 19 | 53 | D GND              |
| D GND               | 18 | 52 | P0.0               |
| P0.1                | 17 | 51 | P0.5               |
| P0.6                | 16 | 50 | D GND              |
| D GND               | 15 | 49 | P0.2               |
| +5 V                | 14 | 48 | P0.7               |
| D GND               | 13 | 47 | P0.3               |
| D GND               | 12 | 46 | AI HOLD COMP       |
| PFI 0/AI START TRIG | 11 | 45 | EXT STROBE*        |
| PFI 1/AI REF TRIG   | 10 | 44 | D GND              |
| D GND               | 9  | 43 | PFI 2/AI CONV CLK  |
| +5 V                | 8  | 42 | PFI 3/CTR 1 SOURCE |
| D GND               | 7  | 41 | PFI 4/CTR 1 GATE   |
| PFI 5/AO SAMP CLK*  | 6  | 40 | CTR 1 OUT          |
| PFI 6/AO START TRIG | 5  | 39 | D GND              |
| D GND               | 4  | 38 | PFI 7/AI SAMP CLK  |
| PFI 9/CTR 0 GATE    | 3  | 37 | PFI 8/CTR 0 SOURCE |
| CTR 0 OUT           | 2  | 36 | D GND              |
| FREQ OUT            | 1  | 35 | D GND              |

NC = No Connect

