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# PXle-7861 Specifications

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# NI PXIe-7861 Specifications

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

## Analog Input

|  |   |
|--|---|
| Number of channels   | 16  |
| Input modes (software-selectable; selection applies to all channels) | DIFF, NRSE, RSE                             |
| Type of ADC  | Successive approximation register (SAR)     |
| Resolution   | 16 bits                                     |
| Conversion time  | 1 $\mu$ s                                   |
| Maximum sampling rate (per channel)                                  | 1 MS/s                                      |
| <b>Input impedance</b>   |   |
| Powered on   | 1.25 G $\Omega$    2 pF                     |
| Powered off/overload   | 4 k $\Omega$ minimum                        |
| Input signal range (software-selectable)                             | $\pm 1$ V, $\pm 2$ V, $\pm 5$ V, $\pm 10$ V |
| Input bias current   | $\pm 5$ nA                                  |
| Input offset current   | $\pm 5$ nA                                  |
| Input coupling   | DC  |

**Overvoltage protection**

|             |               |
|-------------|---------------|
| Powered on  | ±42 V maximum |
| Powered off | ±35 V maximum |

| Range (V) | Measurement Voltage, AI+ to AI- |             |             | Maximum Working Voltage<br>(Signal + Common Mode) |
|-----------|---------------------------------|-------------|-------------|---|
|           | Minimum (V) <sup>[1]</sup>      | Typical (V) | Maximum (V) |   |
| ±10       | ±10.37                          | ±10.5       | ±10.63      | ±12 V of ground                                   |
| ±5        | ±5.18                           | ± 5.25      | ±5.32       | ±10 V of ground                                   |
| ±2        | ±2.07                           | ±2.1        | ±2.13       | ±8.5 V of ground                                  |
| ±1        | ±1.03                           | ±1.05       | ±1.06       | ±8 V of ground                                    |

Table 5. AI Operating Voltage Ranges for Over Temperature

## AI Absolute Accuracy

Absolute accuracy at full scale numbers is valid immediately following internal calibration and assumes the device is operating within 10 °C of the last external calibration. Accuracies listed are valid for up to one year from the device external calibration.

Absolute accuracy at full scale on the analog input channels is determined using the following assumptions:

- TempChangeFromLastExternalCal = 10 °C
- TempChangeFromLastInternalCal = 1 °C
- number\_of\_readings = 10,000
- CoverageFactor = 3  $\sigma$

| Specifications                       | Range |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|-------|
|                                      | ±20 V | ±10 V | ±5 V  | ±2 V  | ±1 V  |
| Residual Gain Error (ppm of Reading) |       | 104.4 | 105.9 | 110.6 | 118.4 |
| Gain Tempco (ppm/°C)                 |       | 20    | 20    | 20    | 20    |
| Reference Tempco (ppm/°C)            |       | 4     | 4     | 4     | 4     |

| Specifications  | Range |       |       |       |       |
|---|-------|-------|-------|-------|-------|
|   | ±20 V | ±10 V | ±5 V  | ±2 V  | ±1 V  |
| Residual Offset Error (ppm of Range)                  |       | 16.4  | 16.4  | 16.4  | 16.4  |
| Offset Tempco (ppm of Range/°C)                       |       | 4.18  | 4.17  | 4.41  | 4.63  |
| INL Error (ppm of range)                              |       | 42.52 | 46.52 | 46.52 | 50.52 |
| Random Noise, $\sigma$ ( $\mu\text{V}_{\text{rms}}$ ) |       | 263   | 156   | 90    | 74    |
| Absolute Accuracy at Full Scale ( $\mu\text{V}$ )     |       | 2,283 | 1,170 | 479   | 252   |

Table 2. AI Absolute Accuracy (Calibrated)

| Specifications  | Range |        |        |       |       |
|---|-------|--------|--------|-------|-------|
|   | ±20 V | ±10 V  | ±5 V   | ±2 V  | ±1 V  |
| Residual Gain Error (ppm of Reading)                  |       | 2,921  | 3,021  | 3,021 | 3,021 |
| Gain Tempco (ppm/°C)                                  |       | 20     | 20     | 20    | 20    |
| Reference Tempco (ppm/°C)                             |       | 4      | 4      | 4     | 4     |
| Residual Offset Error (ppm of Range)                  |       | 661    | 671    | 700   | 631   |
| Offset Tempco (ppm of Range/°C)                       |       | 4.18   | 4.17   | 4.41  | 4.63  |
| INL Error (ppm of range)                              |       | 42.52  | 46.52  | 46.52 | 50.52 |
| Random Noise, $\sigma$ ( $\mu\text{V}_{\text{rms}}$ ) |       | 263    | 156    | 90    | 74    |
| Absolute Accuracy at Full Scale ( $\mu\text{V}$ )     |       | 36,895 | 19,018 | 7,667 | 3,769 |

Table 7. AI Absolute Accuracy (Uncalibrated)

## Calculating Absolute Accuracy

$$\text{AbsoluteAccuracy} = \text{Reading} \times (\text{GainError}) + \text{Range} \times (\text{OffsetError}) + \text{NoiseUncertainty}$$

$$\text{GainError} = \text{ResidualGainError} + \text{GainTempco} \times (\text{TempChangeFromLastInternalCal}) + \text{ReferenceTempco} \times (\text{TempChangeFromLastExternalCal})$$

$$\text{OffsetError} = \text{ResidualOffsetError} + \text{OffsetTempco} \times (\text{TempChangeFromLastInternalCal}) + \text{INL\_Error}$$

$$\text{NoiseUncertainty} = \frac{\text{RandomNoise} \times \text{CoverageFactor}}{\sqrt{\text{number\_of\_readings}}}$$

Refer to the following equation for an example of calculating absolute accuracy for a 10 V reading.

Absolute accuracy at full scale on the analog input channels is determined using the following assumptions:

- TempChangeFromLastExternalCal = 10 °C
- TempChangeFromLastInternalCal = 1 °C
- number\_of\_readings = 10,000
- CoverageFactor = 3  $\sigma$

$$\text{GainError} = 104.4 \text{ ppm} + 20 \text{ ppm} \times 1 + 4 \text{ ppm} \times 10$$

$$\text{GainError} = 164.4 \text{ ppm}$$

$$\text{OffsetError} = 16.4 \text{ ppm} + 4.18 \text{ ppm} \times 1 + 42.52 \text{ ppm}$$

$$\text{OffsetError} = 63.1 \text{ ppm}$$

$$\text{NoiseUncertainty} = \frac{263 \mu\text{V} \times 3}{\sqrt{10,000}}$$

$$\text{NoiseUncertainty} = 7.89 \mu\text{V}$$

$$\text{AbsoluteAccuracy} = 10 \text{ V} \times (\text{GainError}) + 10 \text{ V} \times (\text{OffsetError})$$

$$+ \text{NoiseUncertainty}$$

$$\text{AbsoluteAccuracy} = 2,283 \mu\text{V}$$

## DC Transfer Characteristics

|                   |  |
|-------------------|--|
| INL               | Refer to the AI Accuracy Table               |
| DNL               | $\pm 0.4$ LSB typical, $\pm 0.9$ LSB maximum |
| No missing codes  | 16 bits guaranteed                           |
| CMRR, DC to 60 Hz | -100 dB                                      |

## Dynamic Characteristics

|                  |       |
|------------------|-------|
| <b>Bandwidth</b> |       |
| Small signal     | 1 MHz |

| Large signal |               | 500 kHz      |              |               |
|--------------|---------------|--------------|--------------|---------------|
| Range (V)    | Step Size (V) | Accuracy     |              |               |
|              |               | ±16 LSB      | ±4 LSB       | ±2 LSB        |
| ±20          |               |              |              |               |
| ±10          | ±20.0         | 1.50 $\mu$ s | 4.00 $\mu$ s | 7.00 $\mu$ s  |
|              | ±2.0          | 0.50 $\mu$ s | 0.50 $\mu$ s | 1.00 $\mu$ s  |
|              | ±0.2          | 0.50 $\mu$ s | 0.50 $\mu$ s | 0.50 $\mu$ s  |
| ±5           | ±10           | 1.50 $\mu$ s | 3.50 $\mu$ s | 7.50 $\mu$ s  |
|              | ±1            | 0.50 $\mu$ s | 0.50 $\mu$ s | 1.00 $\mu$ s  |
|              | ±0.1          | 0.50 $\mu$ s | 0.50 $\mu$ s | 0.50 $\mu$ s  |
| ±2           | ±4            | 1.00 $\mu$ s | 3.50 $\mu$ s | 8.00 $\mu$ s  |
|              | ±0.4          | 0.50 $\mu$ s | 0.50 $\mu$ s | 1.00 $\mu$ s  |
|              | ±0.04         | 0.50 $\mu$ s | 0.50 $\mu$ s | 0.50 $\mu$ s  |
| ±1           | ±2            | 1.00 $\mu$ s | 3.50 $\mu$ s | 12.00 $\mu$ s |
|              | ±0.2          | 0.50 $\mu$ s | 0.50 $\mu$ s | 2.00 $\mu$ s  |
|              | ±0.02         | 0.50 $\mu$ s | 0.50 $\mu$ s | 0.50 $\mu$ s  |

Table 8. Settling Time

|           |                                       |
|-----------|---------------------------------------|
| Crosstalk | -80 dB, DC to 100 kHz, at 50 $\Omega$ |
|-----------|---------------------------------------|

## Analog Output

|                    |                              |
|--------------------|------------------------------|
| Output type        | Single-ended, voltage output |
| Number of channels | 8                            |
| Resolution         | 16 bits                      |
| Update time        | 1 $\mu$ s                    |

| Maximum update rate           | 1 MS/s                             |             |             |
|-------------------------------|------------------------------------|-------------|-------------|
| Type of DAC                   | Enhanced R-2R                      |             |             |
| Range                         | ±10 V                              |             |             |
| Output coupling               | DC                                 |             |             |
| Output impedance              | 0.5 Ω                              |             |             |
| Current drive                 | ±2.5 mA                            |             |             |
| Protection                    | Short circuit to ground            |             |             |
| <b>Overvoltage protection</b> |                                    |             |             |
| Powered on                    | ±15 V maximum                      |             |             |
| Powered off                   | ±10 V maximum                      |             |             |
| Power-on state                | User-configurable                  |             |             |
| Power-on glitch               | 1 V for 4 μs                       |             |             |
| Power-down glitch             | 1 V for 200 μs                     |             |             |
| Range (V)                     | Measurement Voltage, AO+ to AO GND |             |             |
|                               | Minimum (V) <sup>[2]</sup>         | Typical (V) | Maximum (V) |
| ±10                           | ±10.1                              | ±10.16      | ±10.22      |

Table 5. AO Operating Voltage Ranges for Over Temperature

## AO Absolute Accuracy

Absolute accuracy at full scale numbers is valid immediately following internal calibration and assumes the device is operating within 10 °C of the last external calibration. Accuracies listed are valid for up to one year from the device external calibration.

Absolute accuracy at full scale on the analog output channels is determined using the following assumptions:

- TempChangeFromLastExternalCal = 10 °C
- TempChangeFromLastInternalCal = 1 °C

| Specifications                       | ±10 V Range |
|--------------------------------------|-------------|
| Residual Gain Error (ppm of Reading) | 87.3        |
| Gain Tempco (ppm/°C)                 | 12.6        |
| Reference Tempco (ppm/°C)            | 4           |
| Residual Offset Error (ppm of Range) | 41.1        |
| Offset Tempco (ppm of Range/°C)      | 7.8         |
| INL Error (ppm of range)             | 61          |
| Absolute Accuracy at Full Scale (μV) | 2,498       |

Table 6. AO Absolute Accuracy (Calibrated)

| Specifications                       | ±10 V Range |
|--------------------------------------|-------------|
| Residual Gain Error (ppm of Reading) | 2,968.6     |
| Gain Tempco (ppm/°C)                 | 12.6        |
| Reference Tempco (ppm/°C)            | 4           |
| Residual Offset Error (ppm of Range) | 1,004.1     |
| Offset Tempco (ppm of Range/°C)      | 7.8         |
| INL Error (ppm of range)             | 61          |
| Absolute Accuracy at Full Scale (μV) | 40,941      |

Table 7. AO Absolute Accuracy (Uncalibrated)

## Calculating Absolute Accuracy

$$\text{AbsoluteAccuracy} = \text{OutputValue} \times (\text{GainError}) + \text{Range} \times (\text{OffsetError})$$

$$\text{GainError} = \text{ResidualGainError} + \text{GainTempco} \times (\text{TempChangeFromLastInternalCal}) + \text{ReferenceTempco} \times (\text{TempChangeFromLastExternalCal})$$

$$\text{OffsetError} = \text{ResidualGainError} + \text{AOffsetTempco} \times (\text{TempChangeFromLastInternalCal}) + \text{INL\_Error}$$

Refer to the following equation for an example of calculating absolute accuracy for a 10 V reading.

Absolute accuracy at full scale on the analog output channels is determined using the following assumptions:

- TempChangeFromLastExternalCal = 10 °C
- TempChangeFromLastInternalCal = 1 °C

$$\text{GainError} = 87.3 \text{ ppm} + 12.6 \text{ ppm} \times 1 + 4 \text{ ppm} \times 10$$

$$\text{GainError} = 139.9 \text{ ppm}$$

$$\text{OffsetError} = 41.1 \text{ ppm} + 7.8 \text{ ppm} \times 1 + 61 \text{ ppm}$$

$$\text{OffsetError} = 109.9 \text{ ppm}$$

$$\text{AbsoluteAccuracy} = 10 \text{ V} \times (\text{GainError}) + 10 \text{ V} \times (\text{OffsetError})$$

$$\text{AbsoluteAccuracy} = 2,498 \mu\text{V}$$

## DC Transfer Characteristics

|              |                                  |
|--------------|----------------------------------|
| INL          | Refer to the AO Accuracy Table   |
| DNL          | ±0.5 LSB typical, ±1 LSB maximum |
| Monotonicity | 16 bits, guaranteed              |

## Dynamic Characteristics

| Step Size (V) | Accuracy |        |        |
|---------------|----------|--------|--------|
|               | ±16 LSB  | ±4 LSB | ±2 LSB |
| ±20.0         | 5.3 μs   | 6.5 μs | 7.8 μs |

| Step Size (V) | Accuracy    |             |             |
|---------------|-------------|-------------|-------------|
|               | ±16 LSB     | ±4 LSB      | ±2 LSB      |
| ±2.0          | 3.2 $\mu$ s | 3.9 $\mu$ s | 4.4 $\mu$ s |
| ±0.2          | 1.8 $\mu$ s | 2.8 $\mu$ s | 3.8 $\mu$ s |

Table 8. Settling Time

|                                      |                              |
|--------------------------------------|------------------------------|
| Slew rate                            | 10 V/ $\mu$ s                |
| Noise                                | 250 $\mu$ V RMS, DC to 1 MHz |
| Glitch energy at midscale transition | ±10 mV for 3 $\mu$ s         |

## 5V Output

|                        |                 |
|------------------------|-----------------|
| Output voltage         | 4.75 V to 5.1 V |
| Output current         | 0.5 A maximum   |
| Overvoltage protection | ±30 V           |
| Overcurrent protection | 650 mA          |

## Digital I/O

| Connector   | Number of Channels | Maximum Frequency |
|-------------|--------------------|-------------------|
| Connector 0 | 16                 | 10 MHz            |
| Connector 1 | 16                 | 10 MHz            |

Table 9. Channel Frequency

|               |               |
|---------------|---------------|
| Compatibility | LVTTL, LVCMOS |
|---------------|---------------|

| Logic family  | Fixed                                  |   |
|---------------|--|---|
| Voltage level | 3.3 V                                  |   |
| Logic Family  | Input Low Voltage ( $V_{IL}$ ) Maximum | Input High Voltage ( $V_{IH}$ ) Minimum |
| 3.3 V         | 0.80 V                                 | 2.00 V                                  |

Table 10. Digital Input Logic Levels

| Minimum input         | -0.3 V                           |   |  |
|-----------------------|----------------------------------|---|--|
| Maximum input         | 3.6 V                            |   |  |
| Input leakage current | $\pm 15 \mu\text{A}$ maximum     |   |  |
| Input impedance       | 50 k $\Omega$ typical, pull-down |   |  |
| Logic Family          | Current                          | Output Low Voltage ( $V_{OL}$ ) Maximum | Output High Voltage ( $V_{OH}$ ) Minimum |
| 3.3 V                 | 100 $\mu\text{A}$                | 0.20 V                                  | 3.00 V                                   |
|                       | 4 mA                             | 0.40 V                                  | 2.40 V                                   |

Table 11. Digital Output Logic Levels

|  |                         |
|--|-------------------------|
| <b>Maximum DC output current per channel</b> |                         |
| Source                                       | 4.0 mA                  |
| Sink   | 4.0 mA                  |
| Output impedance                             | 50 $\Omega$             |
| Power-on state <sup>[3]</sup>                | Programmable, by line   |
| Protection <sup>[4]</sup>                    | $\pm 15$ V, single line |

|   |             |
|---|-------------|
| Direction control of digital I/O channels | Per channel |
| Minimum I/O pulse width                   | 50 ns       |
| Minimum sampling period                   | 5 ns        |

## Reconfigurable FPGA

|                                 |   |
|---------------------------------|---|
| FPGA type                       | Kintex-7 160T   |
| Number of flip-flops            | 202,800   |
| Number of LUTs                  | 101,400   |
| Embedded Block RAM              | 11,700 kbits  |
| Number of DSP48 slices          | 600   |
| Timebase                        | 40 MHz, 80 MHz, 120 MHz, 160 MHz, or 200 MHz                    |
| Default timebase                | 40 MHz  |
| Timebase reference source       | Onboard clock, phase-locked to PXI Express100 MHz (PXIe_CLK100) |
| Onboard clock timebase accuracy | ±100 ppm, 250 pspeak-to-peak jitter                             |
| Data transfers                  | DMA, interrupts, programmed I/O                                 |

## Onboard DRAM

|                               |                    |
|-------------------------------|--------------------|
| Memory size                   | 1 Bank; 512 MB     |
| Maximum theoretical data rate | 800 MB/s streaming |

## Synchronization Resources

|                     |  |
|---------------------|--|
| Input/output source | PXI_Trig<0..7>   |
| Input source        | PXI_Star, PXIe_DStarA, PXIe_DStarB, PXI_Clk10, PXIe_Clk100 |
| Output source       | PXIe_DStarC  |

## Bus Interface

|                        |   |
|------------------------|---|
| Form factor            | x4 PXI Express, specification v1.0 compliant            |
| Slot compatibility     | x4, x8, and x16 PXI Express or PXI Express hybrid slots |
| Data transfers         | DMA, interrupts, programmed I/O                         |
| Number of DMA channels | 16  |

## Power Requirements

Power requirements are dependent on the digital output loads and configuration of the LabVIEW FPGA VI used in your application.

|        |     |
|--------|-----|
| +3.3 V | 3 A |
|--------|-----|

|       |     |
|-------|-----|
| +12 V | 2 A |
|-------|-----|

## Physical Characteristics

If you need to clean the device, wipe it with a dry, clean towel.

**Tip** For two-dimensional drawings and three-dimensional models of the device and connectors, visit [ni.com/dimensions](http://ni.com/dimensions) and search by model number.

|                |   |
|----------------|---|
| Dimensions     | 21.4 cm × 13.0 cm × 2.0 cm (8.43 in. × 5.1 in. × 0.8 in.) |
| Weight         | 171.1 g (6.04 oz)   |
| I/O connectors | 2 × 68-pin VHDCI  |

## Maximum Working Voltage

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

|                    |                               |
|--------------------|-------------------------------|
| Channel-to-earth   | ±12 V, Measurement Category I |
| Channel-to-channel | ±24 V, Measurement Category I |

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.

**Caution** Do not use the NI PXle-7861 for connection to signals in Measurement Categories II, III, or IV.

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

## Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

**Note** For safety certifications, refer to the product label or the [Product Certifications and Declarations](#) section.

## Electromagnetic Compatibility

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

- EN 61326-1 (IEC 61326-1): 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** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial

locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in heavy-industrial locations.

**Note** Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

**Note** For EMC declarations and certifications, and additional information, refer to the [Online Product Certification](#) section.

## CE Compliance

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)

## Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit [ni.com/product-certifications](http://ni.com/product-certifications), search by model number, and click the appropriate link.

## Shock and Vibration

|                         |  |
|-------------------------|--|
| Operational shock       | 30 g PK, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Meets MIL-PRF-28800F Class 2 limits.) |
| <b>Random vibration</b> |  |
| Operating               | 5 Hz to 500 Hz, 0.3 g RMS (Tested in accordance with IEC 60068-2-64.)  |

Non-operating 5 Hz to 500 Hz, 2.4 g RMS (Tested in accordance with IEC 60068-2-64. Meets MIL-PRF-28800F Class 3.)

## Environmental

Refer to the manual for the chassis you are using for more information about meeting these specifications.

|  |                                 |
|--|---------------------------------|
| Operating temperature (IEC 60068-2-1, IEC 60068-2-2) | 0 °C to 55 °C                   |
| Storage temperature (IEC 60068-2-1, IEC 60068-2-2)   | -40 °C to 71 °C                 |
| Operating humidity (IEC 60068-2-78)                  | 10% RH to 90% RH, noncondensing |
| Storage humidity (IEC 60068-2-78)                    | 5% RH to 95% RH, noncondensing  |
| Pollution Degree                                     | 2                               |
| Maximum altitude                                     | 2,000 m                         |


Indoor use only.

## 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 **Engineering a Healthy Planet** web page at [ni.com/environment](https://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.

## EU and UK Customers

-  **Waste Electrical and Electronic Equipment (WEEE)**—At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, 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 RoHS**— NI 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 NI 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).)

## Calibration

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| Recommended warm-up time             | 15 minutes                        |
| Calibration interval                 | 1 year                            |
| <b>Onboard calibration reference</b> |                                   |
| DC level <sup>[5]</sup>              | 5.000 V ( $\pm 2$ mV)             |
| Temperature coefficient              | $\pm 4$ ppm/ $^{\circ}$ C maximum |
| Long-term stability                  | $\pm 25$ ppm/1,000 h              |

**Note** Refer to Calibration Certifications at [ni.com/calibration](http://ni.com/calibration) to generate a calibration certificate for the NI PXIe-7861

## NI Services

Visit [ni.com/support](https://ni.com/support) to find support resources including documentation, downloads, and troubleshooting and application development self-help such as tutorials and examples.

Visit [ni.com/services](https://ni.com/services) to learn about NI service offerings such as calibration options, repair, and replacement.

Visit [ni.com/register](https://ni.com/register) to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 N Mopac Expwy, Austin, TX, 78759-3504, USA.

<sup>1</sup> The minimum measurement voltage range is the largest voltage the NI PXle-7861 is guaranteed to accurately measure.

<sup>2</sup> The minimum measurement voltage range is the largest voltage the NI PXle-7861 is guaranteed to accurately measure.

<sup>3</sup> Tristate by default.

<sup>4</sup> NI recommends minimizing long-term over/under-voltage exposure to the Digital I/O. Prolonged DC voltage stresses that violate the maximum and minimum digital input voltage ratings may reduce device longevity. Over/under-voltage stresses are considered prolonged if the cumulative time in the abnormal condition exceeds 1 year.

<sup>5</sup> Actual value stored in Flash memory