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SPECIFICATIONS

PXI-4072

6½-Digit, ±300 V, Onboard 1.8 MS/s Isolated Digitizer, L and C Measurement Support, PXI Digital Multimeter

These specifications apply to the PXI-4072.

Contents

NATIONAL INSTRUMENTS

Definitions

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

Characteristics 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 expected performance met by a majority of the models.
- *Nominal* specifications describe parameters and attributes that may be useful in operation.

Specifications are *Warranted* unless otherwise noted.

Conditions

Specifications are valid under the following conditions unless otherwise noted.

- Calibration interval of 2 years
- 1 hour of warm-up time

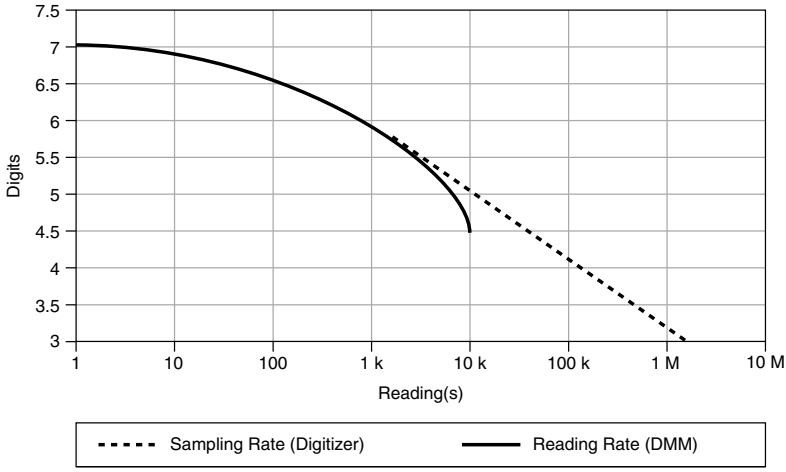
DC Specifications

Table 1. PXI-4072 DC Speeds, Nominal

Digits	Bits	Max Sampling Rate[1] (Digitizer)	Reading Rate[2] (DMM)
7	23	5 S/s	5 S/s
6½	22	100 S/s	100 S/s
5½	18	5 kS/s	3 kS/s
4½	15	20 kS/s	7 kS/s
3	10	1.8 MS/s	N/A

[1] Maximum sampling rates refer to waveform acquisition in digitizer mode.
[2] Auto Zero disabled, except 7 digits, measured on a 10 V and 10 kΩ range.

Figure 1. DC Voltage Maximum Reading Rate, Nominal



DC System Speeds

Range or function change	100/s
Auto Range time, DC V	5 ms
Auto Range time, DC I	5 ms
Auto Range time, resistance	50 ms
Trigger latency	2 µs
Maximum trigger rate	6 kHz

DC Accuracy Specifications

Note All DC accuracy specifications apply to 6½-digit resolution (≥1 PLC), Auto Zero and ADC calibration enabled.

Table 2. DC Voltage ± (ppm of reading + ppm of range)

Range	Resolution	Input Resistance	24 Hr[3] T_{cal} ±1 °C[4]	90 Day[5] T_{cal} ±5 °C	2 Year[5] T_{cal} ±5 °C	Tempco/°C (0 °C to 55 °C)	
						Without Self-cal	With Self-cal
100 mV[6]	100 nV	>10 GΩ, 10 MΩ	10 + 10	30 + 20	40 + 20	4 + 5	0.3 + 0.3
1 V	1 µV	>10 GΩ, 10 MΩ	6 + 2	20 + 6	25 + 6	2 + 1	0.3 + 0.3
10 V	10 µV	>10 GΩ, 10 MΩ	4 + 2	20 + 6	25 + 6	1 + 1	0.3 + 0.3
100 V	100 µV	10 MΩ	6 + 2	30 + 6	35 + 6	4 + 1	0.3 + 0.3
300 V	1 mV	10 MΩ	6 + 6	30 + 20	35 + 20	4 + 3	0.3 + 0.3

Table 3. DC Current[7] ± (ppm of reading + ppm of range)

Range	Resolution	Burden Voltage, typical	Noise (ppm of range RMS)	2 Year (0 °C to 55 °C)	Tempco/°C (0 °C to 55 °C)
20 mA	10 nA	<20 mV	20	400 + 150	8 + 1
200 mA	100 nA	<200 mV	3	400 + 20	8 + 0.2
1 A	1 µA	<800 mV	3	500 + 50	8 + 0.4

[3] Relative to external calibration source.
[4] T_{cal} is the temperature at which the last self-calibration or external calibration was performed.
[5] Using internal self-calibration; specifications valid over the entire operating temperature range.
[6] With offset nulling and 100 ms aperture.
[7] Typical 24 hour accuracy (23 °C ±1 °C) is ±(50 ppm of reading + 5 ppm of range).

Table 4. Resistance (4-Wire and 2-Wire[8]) ± (ppm of reading + ppm of range)

Range	Test Current[9]	Max Test Voltage	24 Hr[10] T_{cal} ±1 °C[11]	90 Day[12] T_{cal} ±5 °C	2 Year[12] T_{cal} ±5 °C	Tempco/°C (0 °C to 55 °C)	
						Without Self-cal	With Self-cal
100 Ω[13]	1 mA	100 mV	15 + 10	50 + 10	80 + 10	8 + 1	0.8 + 1
1 kΩ[13]	1 mA	1 V	12 + 2	50 + 3	80 + 3	8 + 0.1	0.8 + 0.1
10 kΩ[13]	100 µA	1 V	12 + 2	50 + 3	80 + 3	8 + 0.1	0.8 + 0.1
100 kΩ	10 µA	1 V	15 + 2	50 + 6	80 + 6	8 + 0.5	0.8 + 0.5
1 MΩ	10 µA	10 V	20 + 2	60 + 10	90 + 10	8 + 1	0.8 + 1
10 MΩ	1 µA	10 V	100 + 2	200 + 10	400 + 10	30 + 3	30 + 3
100 MΩ[14]	1 µA|| 10 MΩ	10 V	900 + 20	5,500 + 40	6,000 + 40	200 +10	200 + 10

Table 5. Diode Test

Range	Resolution	Test Current[15]	Accuracy
10 V	10 µV	1 µA, 10 µA, 100 µA, 1 mA[16]	Add 20 ppm of reading to 10 VDC voltage specifications.

8 Perform offset nulling or add 200 mΩ to reading.
9 -10% to 0% tolerance.
10 Relative to external calibration source.
11 T_{cal} is the temperature at which the last self-calibration or external calibration was performed.
12 Using internal self-calibration; specifications valid over the entire operating temperature range.
13 With offset compensated ohms enabled.
14 2-wire resistance measurement only. Typical accuracy is 5% between 105 MΩ and 1.05 GΩ. Use tempco outside 18 °C to 28 °C.
15 -10% to 0% tolerance.
16 Up to 4.5 V measurement for 1 mA test current.

Table 6. Additional Noise Errors for DC Voltage, Current, Resistance

Resolution	Additional Noise Error
5½ digits	10 ppm of range
5 digits	30 ppm of range
4½ digits	100 ppm of range

DC Functions General Specifications

Effective CMRR (1 kΩ resistance in LO lead)	>140 dB (DC), 100 ms aperture; >170 dB (>46 Hz) with high-order DC noise rejection, 100 ms aperture
Maximum 4-wire lead resistance	Use the lesser of 10% of range or 1 kΩ
Overrange	105% of range except 300 V and 1 A range
DC voltage input bias current	<30 pA at 23 °C, typical

Table 7. Normal-Mode Rejection Ratio (NMRR)

Readings/s	NMRR	Conditions
10	>100 dB[17]	All noise sources >46 Hz
50 (60)	>60 dB[18]	50 (60) Hz ±0.1%

AC Specifications

Note All AC speed specifications apply with Auto Zero disabled.

Table 8. PXI-4072 AC Bandwidth

Digits	Reading Rate	Bandwidth
6½	0.25 S/s	1 Hz to 300 kHz
6½	2.5 S/s	10 Hz to 300 kHz
6½	25 S/s	100 Hz to 300 kHz

[17] With high-order DC noise rejection; 100 ms aperture.
[18] With normal DC noise rejection; 20 ms (16.67 ms) aperture.

Table 8. PXI-4072 AC Bandwidth (Continued)

Digits	Reading Rate	Bandwidth
6½	100.0 S/s	400 Hz to 300 kHz
5½	1.0 kS/s	20 kHz to 300 kHz

AC System Speeds

Range or function change	10/s
Auto Range time, AC V and AC I	250 ms
Trigger latency	2 µs
Maximum trigger rate	1 kHz

AC Accuracy Specifications

Note All AC accuracy specifications apply to 6½ digit resolution, signal amplitudes greater than 1% of range, and Auto Zero enabled.

Table 9. AC Voltage[19] 2 Year ± (% of reading + % of range), 23 °C ± 10 °C

Range (RMS)	Peak Voltage	Resolution	1 Hz to 40 Hz[20]	>40 Hz to 20 kHz	>20 kHz to 50 kHz	>50 kHz to 100 kHz[21]	>100 kHz to 300 kHz[21]
50 mV[22]	±105 mV	100 nV	0.1 + 0.04	0.05 + 0.04	0.09 + 0.04	0.5 + 0.08	3 + 0.1
500 mV	±1.05 V	1 µV	0.1 + 0.01	0.05 + 0.02	0.09 + 0.02	0.5 + 0.02	3 + 0.05
5 V	±10.5 V	10 µV					
50 V	±105 V	100 µV					
300 V	±450 V	1 mV					
Tempco/°C (0 °C to 55 °C)			0.001 + 0.001	0.001 + 0.001	0.001 + 0.001	0.001 + 0.001	0.01 + 0.01

19 After self-calibration. Measurement aperture greater than $4/f_L$, where f_L is the lowest frequency component of the signal being measured.
20 Specification applies for DC coupling.
21 Above 150 V with V-Hz above 1.5×10^7, specifications are typical.
22 Applies to signals >2 mV.

Table 10. AC Current[23] 2 Year ± (% of reading + % of range), 0 °C ± 55 °C

Range (RMS)	Peak Current	Resolution	Burden Voltage (RMS), Typical	1 Hz to 20 kHz[24]	Tempco/°C (0 °C to 55 °C)
10 mA[25]	±20 mA	10 nA	<10 mV	0.04 + 0.02	0.001 + 0.0001
100 mA	±200 mA	100 nA	<100 mV	0.04 + 0.02	0.001 + 0.0001
1 A	±2 A	1 µA	<800 mV	0.1 + 0.02	0.001 + 0.0001

Note No degradation in accuracy occurs due to crest factor for signals up to the rated peak voltage/current or bandwidth. For high crest factor signals, increase range. For example, for a 500 mVrms signal with a crest factor between 2 and 20, use the 5 V range.

AC Functions General Specifications

Input impedance	1 MΩ in parallel with 150 pF, nominal
Input coupling	AC or DC coupling
Overrange	105% of range except 300 V, 1 A range
Maximum Volt-Hertz product	$>8 \times 10^7$ V-Hz
Maximum DC voltage component	250 V
CMRR (1 kΩ resistance in LO lead)	>70 dB (DC to 60 Hz)

Frequency and Period

Table 11. PXI-4072 Frequency and Period[26]

Input Range	Frequency Range	Period Range	Resolution	2-Year Accuracy[27] 0 °C to 55 °C ± % of reading
50 mV to 300 V	1 Hz to 500 kHz	1 s to 2 µs	6½ digits	0.01

[23] Measurement aperture greater than $4/f_L$, where f_L is the lowest frequency component of the signal being measured.
[24] Specification is typical for the 5 kHz to 20 kHz frequency range.
[25] Applies to signals >200 µA.
[26] 2 second gate time; input signal must be >10% of AC voltage input range.
[27] 0.00025% of reading, typical.

Capacitance and Inductance Specifications

Capacitance Accuracy Specifications

Table 12. Capacitance ± (% of reading + % of range), 23 °C ± 10 °C

Range	Resolution	2 Year[28]	Tempco/°C (0 °C to 55 °C)	Effective Test Current[29]	Effective Frequency[29]	Default Model
300 pF	0.05 pF	0.15 + 0.5	0.01 + 0.025	160 nA	3 kHz	Parallel
1 nF	0.1 pF	0.15 + 0.1	0.01 + 0.003	330 nA	3 kHz	Parallel
10 nF	1 pF	0.15 + 0.1	0.01 + 0.001	330 nA	3 kHz	Parallel
100 nF	10 pF	0.15 + 0.1	0.01 + 0.001	3.3 µA	3 kHz	Parallel
1 µF	100 pF	0.18 + 0.1	0.01 + 0.001	100 µA	1 kHz	Series
10 µF	1 nF	0.18 + 0.1	0.01 + 0.001	1 mA	1 kHz	Series
100 µF	10 nF	0.18 + 0.1	0.01 + 0.001	1 mA	91 Hz	Series
1,000 µF	100 nF	0.18 + 0.1	0.01 + 0.001	1 mA	91 Hz	Series
10,000 µF	1 µF	0.18 + 0.1	0.01 + 0.001	1 mA	91 Hz	Series

Inductance Accuracy Specifications

Table 13. Inductance ± (% of reading + % of range), 23 °C ± 10 °C

Range	Resolution	2 Year[30]	Tempco/°C (0 °C to 55 °C)	Effective Test Current[31]	Effective Frequency[31]	Default Model
10 µH	1 nH	0.5 + 1	0.01 + 0.01	330 µA	30 kHz	Series
100 µH	10 nH	0.2 + 0.1	0.01 + 0.01	330 µA	30 kHz	Series

28 Relative to external calibration source. After lead compensation with <3 meters of coaxial or shielded twisted-pair cabling. Number of averages = 20. Specifications apply to >5% of range and <110% of range, except the 300 pF range, which measures down to 0.05 pF.

29 Correlated to single-tone test method.

30 Relative to external calibration source. After lead compensation with <3 meters of coaxial or shielded twisted-pair cabling. Number of averages = 20. Specifications apply to <110% of range.

31 Correlated to single-tone test method.

Table 13. Inductance ± (% of reading + % of range), 23 °C ± 10 °C (Continued)

Range	Resolution	2 Year[30]	Tempco/°C (0 °C to 55 °C)	Effective Test Current[31]	Effective Frequency[31]	Default Model
1 mH	100 nH	0.2 + 0.1	0.01 + 0.001	330 µA	3 kHz	Series
10 mH[32]	1 µH	0.15 + 0.1	0.005 + 0.001	3.3 µA	3 kHz	Series
100 mH[32]	10 µH	0.15 + 0.1	0.005 + 0.001	33 µA	273 Hz	Series
1 H	100 µH	0.18 + 0.1	0.007 + 0.001	3.3 µA	273 Hz	Series
5 H	1 mH	0.18 + 0.1	0.007 + 0.001	330 nA	273 Hz	Series

Capacitance and Inductance General Specifications

Range or function change	10/s
Capacitance	
300 pF, 1 nF, 10 nF, 100 nF, 1 µF, 10 µF	20 S/s
100 µF, 1,000 µF, 10,000 µF	3 S/s
Capacitance underrange	5% of range
DC bias (capacitance only)	0.46 V from HI to LO, user-selectable (OFF by default)
Inductance	
10 µH, 100 µH	40 S/s
1 mH, 10 mH	20 S/s
100 mH, 1 H, 5 H	3 S/s
Inductance overrange	110% of range
Excitation technique[33]	Multi-tone, constant current

[30] Relative to external calibration source. After lead compensation with <3 meters of coaxial or shielded twisted-pair cabling. Number of averages = 20. Specifications apply to <110% of range.
[31] Correlated to single-tone test method.
[32] Specifications apply to <1% of range.
[33] Patents pending.

Measurement technique[33]	Measures fundamental and third harmonic of voltage waveform and calculates inductance or capacitance using FFT peak analysis
Lead compensation	OPEN/SHORT
Measurement configuration	2-wire with lead compensation

Temperature Accuracy Specifications (°C)

Table 14. Thermocouple Temperature Accuracy Specifications (°C)[34]

Type	Range	2 Year T_{cal} ±5 °C		Tempco/°C[35]	Resolution
		With Simulated Ref. Junction [36]	With PXI-2527[37]		
J	-150 to 1200	0.3	1.0	0.03	0.1
	-210 to -150	0.4	1.2	0.03	0.1
K	-100 to 1200	0.4	1.0	0.03	0.1
	-200 to -100	0.4	1.5	0.03	0.1
N	-100 to 1300	0.3	1.0	0.03	0.1
	-200 to -100	0.6	1.5	0.03	0.1
T	-100 to 400	0.3	1.0	0.03	0.1
	-200 to -100	0.4	1.5	0.03	0.1
E	-150 to 1000	0.2	1.0	0.03	0.1
	-200 to -150	0.3	1.5	0.03	0.1
R	300 to 1760	0.6	1.8	0.06	0.1
	-50 to 300	1.4	1.9	0.06	0.1

[34] T_{cal} is the temperature at which the last external calibration was performed. For total measurement accuracy, add temperature probe error.

[35] Tempco is the temperature coefficient, expressed in degrees of measurement uncertainty per degree change in DMM instrument operating temperature.

[36] Using simulated reference junction.

[37] Includes PXI-2527 with TB-2627 with a typical 0.5 °C CJC error and a typical thermal EMF offset of 2.5 µV for CJC temperatures between 15 °C and 35 °C. Add an additional 0.5 °C uncertainty when CJC is in the range 0-15 °C or 35-50 °C.

Table 14. Thermocouple Temperature Accuracy Specifications (°C)[34] (Continued)

Type	Range	2 Year T_{cal} ±5 °C		Tempco/°C[35]	Resolution
		With Simulated Ref. Junction [36]	With PXI-2527[37]		
S	400 to 1760	0.7	1.8	0.06	0.1
	-50 to 400	1.3	1.8	0.06	0.1
B	1100 to 1820	0.6	1.8	0.09	0.1
	400 to 1100	1.4	1.9	0.09	0.1

Table 15. RTD[38] Temperature Accuracy Specifications (°C)

Range	2 year T_{cal} ±5 °C[36]	Tempco/°C[35]	Resolution
-200 to 600	0.14	0.011	0.01

Table 16. Thermistor Temperature Accuracy Specifications (°C)[39]

Range	2 year T_{cal} ±5 °C[36]	Tempco/°C[35]	Resolution
-80 to 150	0.08	0.002	0.01

Isolated Digitizer Specifications

Note All digitizer accuracy specifications apply to Auto Zero enabled, DC coupling, after self-calibration, and 1.8 MS/s sampling rate. For basic DC accuracy, refer to the DC voltage specifications and DC current specifications in the DC Specifications section.

[34] T_{cal} is the temperature at which the last external calibration was performed. For total measurement accuracy, add temperature probe error.

[35] Tempco is the temperature coefficient, expressed in degrees of measurement uncertainty per degree change in DMM instrument operating temperature.

[36] Using simulated reference junction.

[37] Includes PXI-2527 with TB-2627 with a typical 0.5 °C CJC error and a typical thermal EMF offset of 2.5 µV for CJC temperatures between 15 °C and 35 °C. Add an additional 0.5 °C uncertainty when CJC is in the range 0-15 °C or 35-50 °C.

[38] Based on RTD with R_O = 100 Ω Pt3851 RTD in a 4-wire configuration, using lowest possible resistance range for each temperature. For total measurement accuracy, add temperature probe error.

[39] For total measurement accuracy, add temperature probe error.

Table 17. Voltage Mode

Range	Input Impedance,[40] Nominal	Flatness Error 20 kHz, Typical	Bandwidth (-3 dB), Typical[41]	THD 1 kHz signal, -1 dBfs, Typical	THD 20 kHz signal, -1 dBfs, Typical
100 mV	>10 GΩ, 1 MΩ	-0.03 dB	300 kHz	-104 dB	-78 dB
1 V	>10 GΩ, 1 MΩ	-0.03 dB	300 kHz	-109 dB	-83 dB
10 V	>10 GΩ, 1 MΩ	-0.03 dB	300 kHz	-96 dB	-70 dB
100 V	1 MΩ	-0.03 dB	300 kHz	-96 dB	-70 dB
300 V	1 MΩ	-0.03 dB	300 kHz	-98 dB	-72 dB

Table 18. Current Mode

Range	Resolution	Burden Voltage, Typical	Flatness Error 20 kHz, Typical	Bandwidth (-3 dB), Typical
20 mA	10 nA	<20 mV	±0.01 dB	430 kHz
200 mA	100 nA	<200 mV	±0.01 dB	430 kHz
1 A	1 µA	<800 mV	±0.01 dB	400 kHz

Acquisition System

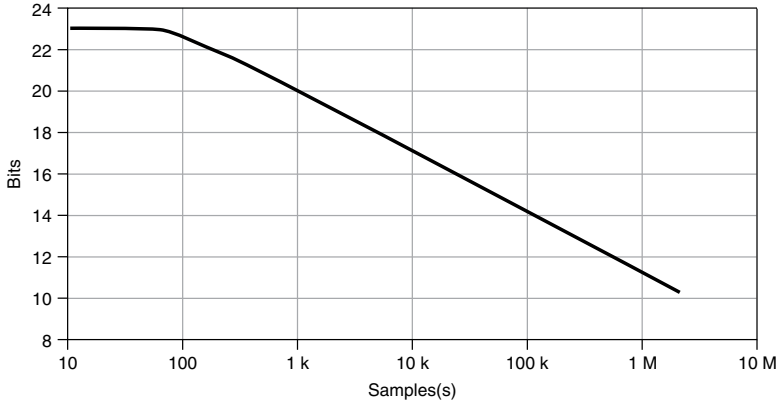
Sampling rate and record duration	
Available sampling rates	$r = \frac{1.8\ MS/s}{y}$, where y = 1, 2, 3,...1.8×10^5
Minimum record duration	8.89 µs
Maximum record duration	149 s
Record duration	n/r, where n = number of samples, r = sampling rate
Variable resolution	10-23 bits; refer to Digitizer Maximum Sampling Rate graph
Available functions	Voltage and current
Voltage ranges	±100 mV to ±300 V (DC or AC coupled)

[40] In parallel with 150 pF.
[41] The AC coupling low frequency (-3 dB) point is 0.8 Hz.

Current ranges	±20 mA to ±1 A
Timebase accuracy	25 ppm
Input trigger	
Latency[42]	1.8 µs
Jitter	<600 ns

Note Refer to *Trigger Specifications* for additional input trigger specifications.

Figure 2. Digitizer Maximum Sampling Rate, Nominal



General Specifications

Warm-up	1 hour to rated accuracy
Self-calibration	Calibrates the FlexDMM relative to high-precision internal voltage and resistance standards. No external calibration equipment required.
External calibration interval	2 year recommended
Measurement category	II

[42] The latency specification value actually reflects negative latency due to sampling before the trigger. Can be reduced to near zero (with the jitter specification) or made positive in software by adding a trigger delay.

Caution Do not use this device for connection to signals or for measurements within Measurement Categories III or IV.

Input protection	
Resistance, diode	Up to 300 VDC
DC V, AC V	Up to 300 VDC or AC_{rms}, 450 V AC peak
DC I and AC I	F 1.25 A 250 V fast-acting user-replaceable fuse
Maximum common-mode voltage	300 VDC or AC_{rms}

Fuse When this fuse symbol is marked on a device, take proper precautions.

Hazardous Voltage This icon denotes a warning advising you to take precautions to avoid electrical shock.

Trigger Specifications

Measurement complete trigger pulse width	3 µs
Input trigger pulse width	1 µs, with <2 m cable
Trigger voltage levels	
Vin High	2.0 V min
Vin Low	0.8 V max
Vout High	2.4 V min
Vout Low	0.4 V max
Trigger voltage level absolute maximums	
Vin High	5.5 V
Vin Low	-0.5 V

Note Triggers are LVTTL/TTL compatible.

Caution The AUX I/O connector on the PXI-4072 is not isolated. This connector is not referenced to the measurement circuit but is referenced to the ground of the PXI chassis. Do not operate the digital signals of this connector beyond -0.5 V to 5.5 V of the PXI chassis ground.

Power Requirements

Caution You can impair the protection provided by the PXI-4072 if you use it in a manner not described in this document.

Power consumption	<12 W from PXI backplane

Physical Characteristics

Dimensions	3U, one-slot, PXI/cPCI module 2.0 cm × 13.0 cm × 21.6 cm (0.8 in. × 5.1 in. × 8.5 in.), nominal
Weight	370 g (13 oz), nominal

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

Environment

Maximum altitude	2,000 m (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Ambient temperature range	0 °C to 55 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity range	Up to 95% at 40 °C

Storage Environment

Ambient temperature range	-40 °C to 70 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity range	5% to 95%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Shock and Vibration

Operational shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.)
Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g_{rms} (Tested in accordance with IEC 60068-2-64.)
Nonoperating	5 Hz to 500 Hz, 2.4 g_{rms} (Tested in accordance with IEC 60068-2-64. Test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Compliance and Certifications

Safety

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 UL and other safety certifications, refer to the product label or the *Online Product Certification* 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
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

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, certifications, and additional information, refer to the *Online Product Certification* section.

CE Compliance CE

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)

Online Product Certification

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*, 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*. 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 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*.

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`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

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