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# NI-9263

# Specifications

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# Contents

NI-9263 Specifications ..... 3

# NI-9263 Specifications

## NI-9263 Nomenclature

In this article, the NI-9263 with screw terminal and NI-9263 with spring terminal are referred to inclusively as the NI-9263.

## 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 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.

### Related information:

- [Software Support for CompactRIO, CompactDAQ, Single-Board RIO, R Series, and EtherCAT](#)

## Conditions

Specifications are valid for the range -40 °C to 70 °C unless otherwise noted. All voltages are relative to COM unless otherwise noted.

## Safety Voltages

Connect only voltages that are within the following limits:

Channel-to-channel	None
<b>Channel-to-earth ground</b>	
Continuous	250 V RMS, Measurement Category II
Withstand	2,300 V RMS, verified by a 5 s dielectric withstand test

## Measurement Category II



**Caution** Do not connect the product to signals or use for measurements within Measurement Categories III or IV.



**Attention** Ne pas connecter le produit à des signaux dans les catégories de mesure III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.

Measurement Category II is for measurements performed on circuits directly connected to the electrical distribution system. This category refers to local-level electrical distribution, such as that provided by a standard wall outlet, for example, 115 V for U.S. or 230 V for Europe.

## Environmental Characteristics

<b>Temperature</b>	
Operating	-40 °C to 70 °C
Storage	-40 °C to 85 °C
<b>Humidity</b>	

Operating	10% RH to 90% RH, noncondensing	
Storage	5% RH to 95% RH, noncondensing	
Ingress protection		IP40
Pollution Degree		2
<b>Maximum altitude</b>		
NI-9263 with screw terminal		2,000 m
NI-9263 with spring terminal		2,000 m
<b>Shock and Vibration</b>		
<b>Operating vibration</b>		
Random	5 g RMS, 10 Hz to 500 Hz	
Sinusoidal	5 g, 10 Hz to 500 Hz	
Operating shock	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations	

To meet these shock and vibration specifications, you must panel mount the system.

## Power Requirements

Power consumption from chassis
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Active mode (at -40 °C)	500 mW maximum
Sleep mode	25 $\mu$ W maximum
<b>Thermal dissipation (at 70 °C)</b>	
Active mode	750 mW maximum
Sleep mode	25 $\mu$ W maximum

## Physical Characteristics

Dimensions	Visit <a href="https://ni.com/dimensions">ni.com/dimensions</a> and search by module number.
<b>Screw-terminal wiring</b>	
Gauge	0.2 mm <sup>2</sup> to 2.5 mm <sup>2</sup> (26 AWG to 14 AWG) copper conductor wire
Wire strip length	13 mm (0.51 in.) of insulation stripped from the end
Temperature rating	90 °C, minimum
Torque for screw terminals	0.5 N · m to 0.6 N · m (4.4 lb · in. to 5.3 lb · in.)
Wires per screw terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule

Ferrules	0.25 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	
<b>Spring-terminal wiring</b>		
Gauge	0.2 mm <sup>2</sup> to 2.5 mm <sup>2</sup> (26 AWG to 14 AWG) copper conductor wire	
Wire strip length	10 mm (0.39 in.) of insulation stripped from the end	
Temperature rating	90 °C, minimum	
Torque for spring terminals	0.5 N · m to 0.6 N · m (4.4 lb · in. to 5.3 lb · in.)	
Wires per spring terminal	One wire per spring terminal; two wires per spring terminal using a 2-wire ferrule	
Ferrules	0.25 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	
<b>Connector securement</b>		
Securement type	Screw flanges provided	
Torque for screw flanges	0.2 N · m (1.80 lb · in.)	
<b>Weight</b>		
NI-9263 with screw terminal	150 g (5.3 oz)	
NI-9263 with screw terminal	139 g (4.9 oz)	

## Output Characteristics

Number of channels	4 analog output channels
DAC resolution	16 bits
Type of DAC	String
Power-on output state	Channels off
Startup voltage <sup>[1]</sup>	0 V
Power-down voltage <sup>[2]</sup>	0 V
<b>Output voltage range</b>	
Nominal	$\pm 10$ V
Minimum	$\pm 10.4$ V
Typical	$\pm 10.7$ V
Maximum	$\pm 11$ V
Current drive	$\pm 1$ mA per channel maximum



Output impedance	2 $\Omega$
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Table 1. Accuracy

Measurement Conditions		Percent of Reading (Gain Error)	Percent of Range <sup>[3]</sup> (Offset Error)
Calibrated	Maximum (-40 °C to 70 °C)	0.35%	0.75%
	Typical (25 °C, $\pm 5$ °C)	0.03%	0.1%
Uncalibrated <sup>[4]</sup>	Maximum (-40 °C to 70 °C)	2.2%	1.7%
	Typical (25 °C, $\pm 5$ °C)	0.3%	0.25%

Stability	
Gain drift	11 ppm/°C
Offset drift	110 $\mu$ V/°C
Protection	
Overvoltage	$\pm 30$ V
Short-circuit	Indefinitely

Table 2. Update Time

Number of Channels	Update Time for All Other Chassis	Update Time for NI cRIO-9151 R Series Expansion Chassis
1	3 $\mu$ s min	3.5 $\mu$ s min
2	5 $\mu$ s min	6.5 $\mu$ s min
3	7.5 $\mu$ s min	9 $\mu$ s min
4	9.5 $\mu$ s min	12 $\mu$ s min

<b>Noise</b>	
Updating at 100 kS/s	600 $\mu$ Vrms
Not updating	260 $\mu$ Vrms
Slew rate	4 V/ $\mu$ s
Crosstalk	76 dB
<b>Settling time (100 pF load, to 1 LSB)</b>	
Full-scale step	20 $\mu$ s
1 V step	13 $\mu$ s
0.1 V step	10 $\mu$ s
Capacitive drive	1,500 pF minimum
Monotonicity	16 bits
DNL	$\pm$ 1 LSB maximum
INL (endpoint)	$\pm$ 12 LSB maximum
MTBF	1,732,619 hours at 25 °C; Bellcore Issue 2, Method 1, Case 3, Limited Part Stress

	Method
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## Calibration

You can obtain the calibration certificate and information about calibration services for the NI-9263 at [ni.com/calibration](https://ni.com/calibration).

Calibration interval	1 year
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