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# NI-9474

# Specifications

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# NI-9474 Specifications

## NI-9474 Nomenclature

In this article, the NI-9474 with screw terminal and NI-9474 with spring terminal are referred to inclusively as the NI-9474. The information in this document applies to all versions of the NI-9474 unless otherwise specified.

## 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.

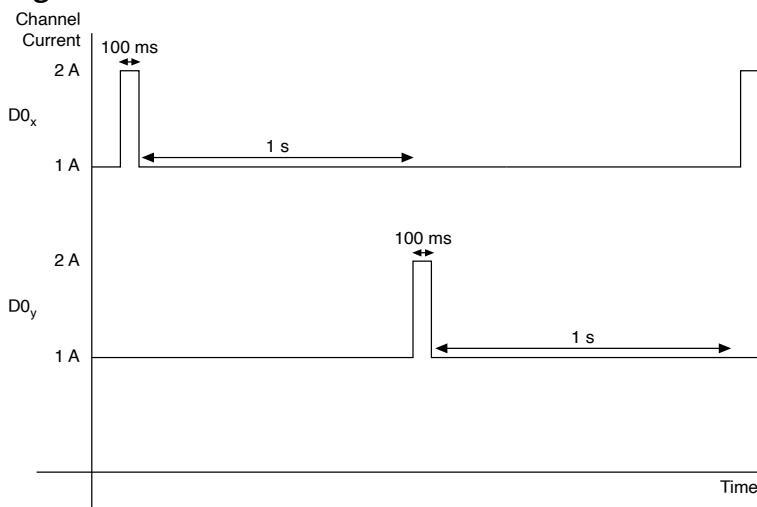
## Output Characteristics

Number of channels	8 digital output channels
Output type	Sourcing
Power-on output state	Channels off
External power supply voltage range ( $V_{sup}$ )	5 V DC to 30 V DC
<b>Output impedance (<math>R_0</math>)</b>	
Typical	0.07 $\Omega$
Maximum	0.13 $\Omega$
Continuous output current ( $I_0$ ), per channel	1.0 A maximum
Output voltage ( $V_0$ )	$V_{sup} - (I_0 \cdot R_0)$
<b>I/O protection</b>	
Voltage	30 V DC maximum
Reversed voltage	None
Short circuit trip time	10 $\mu$ s at 14 A

**Table 1.** Short-circuit Behavior

Current	Channel Behavior	Module Protection
Less than 1 A	Channel does not trip	Module is not damaged
1 A to 2 A for 100 ms maximum, repeatable after 1 s <sup>1</sup>	Channel does not trip	Module is not damaged
2 A to 4.4 A	Channel does not trip	Module may be damaged
4.4 A to 14 A	Channel may trip	Module may be damaged
Greater than 14 A	Channel trips	Module is not damaged

**Figure 1.** Short-circuit Behavior



Output delay time (full load)	1 μs maximum
MTBF	479,889 hours at 25 °C; Bellcore Issue 2, Method 1, Case 3, Limited Part Stress Method

## Safety Voltages

Connect only voltages that are within the following limits.

1. One channel at a time.

Channel-to-COM	30 V DC maximum
External power supply ( $V_{sup}$ ) voltage range	5 V DC to 30 V DC
<b>Isolation</b>	
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



**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	
Maximum altitude	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	660 mW maximum
Sleep mode	0.6 mW maximum
<b>Thermal dissipation (at 70 °C)</b>	
Active mode	1.5 W maximum
Sleep mode	0.6 mW maximum

## Physical Characteristics

### Dimensions and Weight

Dimensions	Visit <a href="https://ni.com/dimensions">ni.com/dimensions</a> and search by module number.	
<b>Weight</b>		
NI-9474 with screw terminal		150 g (5.3 oz)
NI-9474 with spring terminal		139 g (4.9 oz)

### NI-9474 with Screw Terminal Wiring

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 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>

## NI-9474 with spring terminal with Spring Terminal Wiring

Gauge	0.2 mm <sup>2</sup> to 2.5 mm <sup>2</sup> (30 AWG to 12 AWG) copper conductor wire
Wire strip length	10 mm (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per 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>

## Connector Securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.80 lb · in.)