NI-9474 Specifications

2025-03-10

Contents

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.

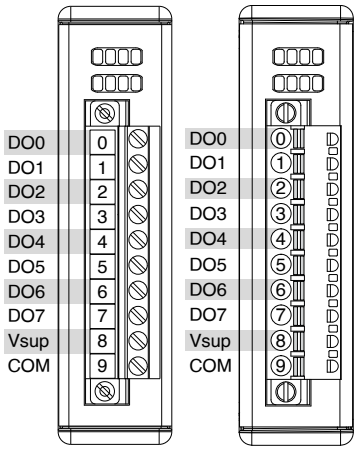
Related information:

- 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.

NI-9474 Pinout



Note You must use 2-wire ferrules to create a secure connection when connecting more than one wire to a single terminal on the NI-9474 with screw terminal or NI-9474 with spring terminal.

Table 1. NI-9474 Signal Descriptions

Signal	Description
COM	Common reference connection to isolated ground
DO	Digital output signal connection
V_{sup}	Voltage supply connection

Table 3. LED Indicators

LED Pattern	Indication
Solid	The channel has been programmed to be in the ON state.
Off	The channel has been programmed to be in the OFF state.

Output Characteristics

Number of channels	8 digital output channels

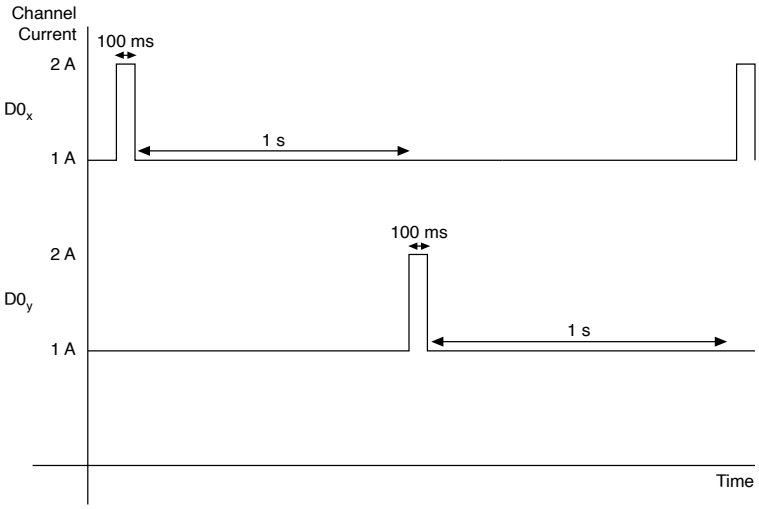
Output type	Sourcing
Power-on output state	Channels off
External power supply voltage range (Vsup)	5 V DC to 30 V DC
Output impedance (R_0)	
Typical	0.07 Ω
Maximum	0.13 Ω
Continuous output current (I_0), per channel	1.0 A maximum
Output voltage (V_0)	Vsup - ($I_0 \cdot R_0$)
I/O protection	
Voltage	30 V DC maximum
Reversed voltage	None
Short circuit trip time	10 µs at 14 A

Table 3. 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,	Channel does not trip	Module is not damaged

Current	Channel Behavior	Module Protection
repeatable after 1 s[1]		
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.

Channel-to-COM	30 V DC maximum

1. One channel at a time.

External power supply (Vsup) voltage range	5 V DC to 30 V DC
Isolation	
Channel-to-channel	None
Channel-to-earth ground	
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

Temperature	
Operating	-40 °C to 70 °C
Storage	-40 °C to 85 °C

Humidity	
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

Shock and Vibration	
Operating vibration	
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	
Active mode	660 mW maximum

Sleep mode	0.6 mW maximum
Thermal dissipation (at 70 °C)	
Active mode	1.5 W maximum
Sleep mode	0.6 mW maximum

Physical Characteristics

Dimensions and Weight

Dimensions	Visit ni.com/dimensions and search by module number.
Weight	
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^2 to 2.5 mm^2 (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^2 to 2.5 mm^2

NI-9474 with spring terminal with Spring Terminal Wiring

Gauge	0.2 mm^2 to 2.5 mm^2 (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^2 to 2.5 mm^2

Connector Securement

Securement type	Screw flanges provided

Torque for screw flanges	0.2 N · m (1.80 lb · in.)

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