NI-9426 Specifications

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Contents

NI-9426 Specifications

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

The following specifications are typical for the range -40 °C to 70 °C unless otherwise noted. All voltages are relative to Vsup unless otherwise noted.

> **Caution** Do not operate the NI-9426 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to NI for repair.

NI-9426 Pinout

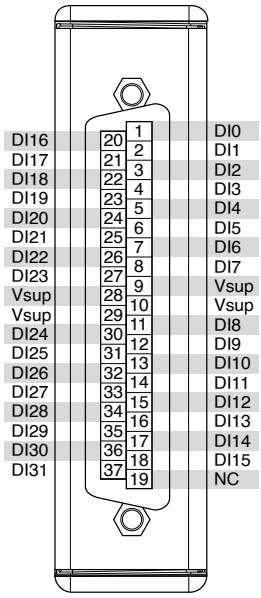

Table 1. Signal Descriptions

Signal	Description
DI	Digital input signal connection
NC	No connection
V_{sup}	Voltage supply connection

Safety Voltages

Connect only voltages that are within the following limits:

Vsup-to-channel	30 VDC maximum	
Isolation		
Channel-to-channel		None
Channel-to-earth ground		
Continuous	60 VDC, Measurement Category I	

Withstand	1,000 Vrms, verified by a 5 s dielectric withstand test

Measurement Category I

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

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

Warning Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINs circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.

Mise en garde Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous peine d'endommager et de compromettre l'isolation. Le produit peut tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des

> tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

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.

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

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.

Input Characterstics

Number of channels	32 digital input channels
Input type	Sourcing
Digital logic levels	
OFF state	
Input voltage[1][1]	≥ (Vsup - 5 V)
Input current	≤150 µA from DI pin

ON state	
Input voltage[1]	≤ (Vsup - 10 V)
Input current	≥330 µA from DI pin
Hysteresis	
Input voltage	1.9 V minimum
Input current	65 µA minimum
Input impedance	30 kΩ ±5%
I/O protection (Vsup-to-channel)	
Input voltage	30 V maximum
Reverse-biased voltage	-30 V maximum
Hold time[2]	0 s minimum
Setup time[3]	1 µs minimum
Update/transfer time[4]	7 µs maximum

1. Vsup is the external power supply voltage.
2. ***Hold time*** is the amount of time input signals must be stable after initiating a read from the module.
3. ***Setup time*** is the amount of time input signals must be stable before reading from the module.

MTBF	955,723 hours at 25 °C; Bellcore Issue 2, Method 1, Case 3, Limited Part Stress Method

Power Requirements

Power consumption from chassis	
Active mode	615 mW maximum
Sleep mode[5]	5 mW maximum
Thermal dissipation (at 70 °C)	
Active mode	1.35 W maximum
Sleep mode	1.16 W maximum

Physical Characteristics

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

Tip For two-dimensional drawings and three-dimensional models of the C Series module and connectors, visit ni.com/dimensions and search by module number.

Weight	147 g (5.2 oz)

4. The update/transfer time is valid when the module is used in a CompactRIO system. When used in other systems, driver software and system latencies impact this time.
5. The external power supply may power the module during sleep mode.