
NI-9485

Specifications

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NI-9485 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

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

Output Characteristics

Number of channels	8 digital output channels
Relay type	Normally open solid-state relay (SSR)
Switching voltage	60 V DC maximum, 30 V rms maximum

Switching current, per channel¹	
All channels	0.75 A maximum
Up to four channels	1.2 A maximum
Switching rate (90% duty cycle)	1 operation per second
Relay open time	0.5 ms, typical
Relay close time	9.0 ms, typical
On resistance	200 mΩ maximum
Off stage leakage	30 μA, typical
MTBF	2,172,740 hours at 25 °C; Bellcore Issue 6, Method 1, Case 3, Limited Part Stress Method

Safety Voltages

Connect only voltages that are within the following limits.

Maximum Voltage, Channel a to Channel b	60 V DC, 30 V RMS
Isolation	
Channel-to-channel (up to 5,000 m)	
Continuous	60 V DC, Measurement Category I
Withstand	1,000 V rms, verified by a 5 s dielectric withstand test
Channel-to-earth ground (up to 2,000 m)	

¹ For additional specifications related to faster switching rates and/or higher currents at lower temperatures, go to ni.com/info and enter the info code rd9485specs.

Continuous	250 V rms, Measurement Category II
Withstand	2,300 V rms, verified by a 5 s dielectric withstand test
Channel-to-earth ground (up to 5,000 m)	
Continuous	60 V DC, Measurement Category I
Withstand	1,000 V rms, verified by a 5 s dielectric withstand test

Measurement Category I

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.

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

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	5000 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	500 mW maximum
Sleep mode	5 mW maximum
Thermal dissipation (at 70 °C)	
Active mode	1.5 W maximum
Sleep mode	5 mW maximum

Physical Characteristics

Screw Terminal Wiring	
Gauge	0.05 mm to 1.5 mm (30 AWG to 14 AWG) copper conductor wire
Wire strip length	6 mm (0.24 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Torque for screw terminals	0.22 N · m to 0.25 N · m (1.95 lb · in. to 2.21 lb · in.)
Wires per terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.25 mm to 1.5 mm
Connector securement	

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.80 lb · in.)
Weight	145 g (5.1 oz)