
NI-9475

Specifications

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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})	0 VDC to 60 VDC
Output impedance (R_0)	0.14 Ω maximum
Continuous output current (I_0), per channel	1 A maximum
Output voltage	$V_{sup} - (I_0 \times R_0)$
I/O protection	
Voltage	60 VDC maximum
Reversed voltage	None
Short-circuit trip time	10 μ s at 13 A

Table 1. Short-Circuit Behavior

Current	Channel Behavior	Module Protection
0 A to 1 A	Channel does not trip	Module is not damaged
1 A to 6 A	Channel does not trip	Module may be damaged
6 A to 13 A	Channel may trip	Module may be damaged
>13 A	Channel trips	Module is not damaged

Output delay time (full)	1 μ s maximum
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load)	
MTBF	1,096,296 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:

Vsup-to-COM	60 V DC maximum, Measurement Category I	
Isolation		
Channel-to-channel	None	
Channel-to-earth ground		
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.

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	355 mW maximum
Sleep mode	25 μ W maximum
Thermal dissipation (at 70 °C)	
Active mode	1.5 W maximum
Sleep mode	25 μ W maximum

Physical Characteristics

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

Weight	142 g (4.9 oz)
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