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# NI-9860

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# NI 9860 Specifications

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

## NI-XNET Host Port

|  |  |
|--|--|
| Connector type                         | NI-XNET hardware selectable interface port |
| Port supported transceiver cable types | NI-XNET transceiver cables (CAN/LIN)       |



**Note** For more information about transceiver cables, refer to the transceiver cable operating instructions.

## Power Requirements

|   |   |
|---|---|
| <b>Power consumption from chassis</b>               |   |
| Active mode   | 1 W max   |
| Sleep mode  | 5 mW max  |
| <b>External Power Supply (<math>V_{SUP}</math>)</b> |   |
| Voltage input range                                 | 9 to 30 VDC (measured at the NI 9860 power connector) |
| Power consumption                                   | 1.5 W max (active mode)                               |



**Caution** Do not connect  $V_{SUP}$  to a DC mains supply or to any supply requiring a connecting cable longer than 3 m (10 ft). A DC mains supply

is a local DC electricity supply network in the infrastructure of a site or building.

|                                     |                         |
|-------------------------------------|-------------------------|
| Total thermal dissipation on module | 1.2 W max (active mode) |
|-------------------------------------|-------------------------|

## Physical Characteristics

To clean the module, wipe it with a dry towel.

|        |                        |
|--------|------------------------|
| Weight | Approx. 144 g (5.0 oz) |
|--------|------------------------|

## Safety Voltages

Connect only voltages that are within the following limits:

|                       |                                    |
|-----------------------|------------------------------------|
| $V_{SUP}$ to COM      | 30 VDC max, Measurement Category I |
| Chassis ground to COM | 30 VDC max, Measurement Category I |

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.



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



**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.

## Safety and Hazardous Locations Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1
- EN 60079-0:2012, EN 60079-15:2010
- IEC 60079-0: Ed 6, IEC 60079-15; Ed 4
- UL 60079-0; Ed 6, UL 60079-15; Ed 4
- CSA 60079-0:2011, CSA 60079-15:2012



**Note** For UL and other safety certifications, refer to the product label or the [Online Product Certification](#) section.

## Hazardous Locations

|                |  |
|----------------|--|
| U.S. (UL)      | Class I, Division 2, Groups A, B, C, D, T4; Class I, Zone 2, AEx nA IIC T4 |
| Canada (C-UL)  | Class I, Division 2, Groups A, B, C, D, T4; Class I, Zone 2, Ex nA IIC T4  |
| Europe (DEMKO) | Ex nA IIC T4 Gc  |

## Environmental

Refer to the installation instructions for the chassis you are using for more information about meeting these specifications.

|   |                                 |
|---|---------------------------------|
| Operating temperature<br>(IEC 60068-2-1, IEC 60068-2-2) | -40 °C to 70 °C                 |
| Storage temperature<br>(IEC 60068-2-1, IEC 60068-2-2)   | -40 °C to 85 °C                 |
| <b>Ingress protection</b>                               |                                 |
| NI 9860   | IP 30                           |
| NI 9860 with power and transceiver cables attached      | IP 40                           |
| Operating humidity (IEC 60068-2-56)                     | 10% RH to 90% RH, noncondensing |
| Storage humidity (IEC 60068-2-56)                       | 5% RH to 95% RH, noncondensing  |
| Pollution degree (IEC 60664)                            | 2                               |
| Maximum altitude  | 5,000 m                         |

Indoor use only.

## Shock and Vibration

To meet these specifications, you must panel mount the system.

|                                  |   |
|----------------------------------|---|
| <b>Operating vibration</b>       |   |
| Random (IEC 60068-2-64)          | 5 $g_{rms}$ , 10 Hz to 500 Hz   |
| Sinusoidal (IEC 60068-2-6)       | 5 g, 10 Hz to 500 Hz  |
| Operating shock (IEC 60068-2-27) | 30 g, 11 ms half sine; 50 g, 3 ms half sine;<br>18 shocks at 6 orientations |

## Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



**Note** For the standards applied to assess the EMC of this product, refer to the **Online Product Certification** section.



**Note** For EMC compliance, operate this product according to the documentation.

## CE Compliance $\subset$ €

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

## Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit [ni.com/certification](https://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the **Commitment to the Environment** web page at [ni.com/environment](https://ni.com/environment). This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

## Waste Electrical and Electronic Equipment (WEEE)

**EU Customers** At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit [ni.com/environment/weee](https://ni.com/environment/weee).

## 电子信息产品污染控制管理办法（中国 RoHS）



NI 符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于 NI 中国 RoHS 合规性信息，请登录 [ni.com/environment/rohs\\_china](https://ni.com/environment/rohs_china)。(For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](https://ni.com/environment/rohs_china).)