

## SPECIFICATIONS

# NI 9145

## Deterministic Ethernet Expansion Chassis for C Series Modules

This document lists the specifications for the NI 9145. The following specifications are typical for the -40 °C to 70 °C operating temperature range unless otherwise noted.



**Caution** Do not operate the NI 9145 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.

## Network

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Network interface	100BaseTX Ethernet
Compatibility	EtherCAT
Communication rates	100 Mbps
Maximum cabling distance	100 m/segment

## Reconfigurable FPGA

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Type	Xilinx Zynq-7000, XC7Z020 All Programmable SoC
Number of logic cells	85,000
Number of flip-flops	106,400
Number of 6-input LUTs	53,200
Number of DSP slices (18 × 25 multipliers)	220
Available block RAM	4480 kbits

# Power Requirements

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**Caution** You must use a National Electric Code (NEC) UL Listed Class 2 power supply with the NI 9145 chassis.

Recommended power supply	20 W, 24 VDC
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Power consumption	16 W maximum
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Voltage input range	9 V to 30 V
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## Physical Characteristics

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If you need to clean the NI 9145, wipe it with a dry towel.



**Tip** For two-dimensional drawings and three-dimensional models of the NI 9145, visit [ni.com/dimensions](https://ni.com/dimensions) and search by module number.

Weight (unloaded)	980 g (34.6 oz)
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Dimensions (unloaded)	272.8 mm × 88.1 mm × 62.3 mm (10.74 in. × 3.47 in. × 2.45 in.)
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### Screw-terminal wiring

Gauge	0.2 mm <sup>2</sup> to 2.1 mm <sup>2</sup> (24 AWG to 14 AWG) copper conductor wire
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Wire strip length	6 mm (0.24 in.) of insulation stripped from the end
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Temperature rating	85 °C
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Torque for screw terminals	0.20 N · m to 0.25 N · m (1.8 lb · in. to 2.2 lb · in.)
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Wires per screw terminal	One wire per screw terminal
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### Connector securement

Securement type	Screw flanges provided
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Torque for screw flanges	0.3 N · m to 0.4 N · m (2.7 lb · in. to 3.5 lb · in.)
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## Safety Voltages

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Connect only voltages that are below these limits.

V terminal to C terminal	30 V maximum, Measurement Category I
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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 NI 9145 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 not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

## Environmental

Temperature (IEC 60068-2-1 and IEC 60068-2-2)

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



**Caution** Failure to follow the mounting instructions in the user manual can cause temperature derating. Visit [ni.com/info](http://ni.com/info) and enter Info Code `criomounting` for more information about mounting configurations and temperature derating.

Ingress protection	IP40
Operating humidity (IEC 60068-2-78)	10% RH to 90% RH, noncondensing
Storage humidity (IEC 60068-2-78)	5% RH to 95% RH, noncondensing
Pollution Degree (IEC 60664)	2
Maximum altitude	5,000 m

Indoor use only.

## 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 (ATEX) and International (IECEX)	Ex nA IIC T4 Gc

# Shock and Vibration

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

## Operating vibration

Random (IEC 60068-2-64)	5 g <sub>rms</sub> , 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; 18 shocks at 6 orientations

# Safety and Hazardous Locations Standards

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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.

# Electromagnetic Compatibility

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

- EN 61326-1 (IEC 61326-1): Class A emissions; Industrial 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** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in heavy-industrial locations.



**Note** Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.



**Note** For EMC declarations and certifications, and additional information, refer to the [Online Product Certification](#) section.

## CE Compliance

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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

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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](#), search by model number or product line, and click the appropriate link in the Certification column.

## Environmental Management

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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 *Minimize Our Environmental Impact* web page at [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)

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**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](#).

# 电子信息产品污染控制管理办法（中国 RoHS）

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