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cDAQ-9171

SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION


NI cDAQ™-9171

NI CompactDAQ One-Slot Bus-Powered USB Chassis


This document includes compliance precautions and connection information for the NI cDAQ-9171.

 **Note** The guidelines in this document are specific to the NI cDAQ-9171. The other components in the system might not meet the same ratings. Refer to the documentation for each component in the system to determine the safety and EMC guidelines for the entire system.

Safety Guidelines


 **Caution** Do not operate the NI cDAQ-9171 in a manner not specified in this user manual. 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 National Instruments for repair.


 **Note** Because some C Series modules may have more stringent certification standards than the NI cDAQ-9171, the combined system may be limited by individual component restrictions. Refer to the *NI cDAQ-9171 Specifications* for more details.


 **Hot Surface** This icon denotes that the component may be hot. Touching this component may result in bodily injury.


Safety Guidelines for Hazardous Locations


The NI cDAQ-9171 is suitable for use in Class I, Division 2, Groups A, B, C, D, T4 hazardous locations; Class I, Zone 2, AEx nA IIC T4 and Ex nA IIC T4 hazardous locations; and nonhazardous locations only. Follow these guidelines if you are installing the NI cDAQ-9171 in a potentially explosive environment. Not following these guidelines may result in serious injury or death.

 **Caution** Do not disconnect I/O-side wires or connectors unless power has been switched off or the area is known to be nonhazardous.


 **Caution** Do not remove modules unless power has been switched off or the area is known to be nonhazardous.


 **Caution** Substitution of components may impair suitability for Class I, Division 2.


 **Caution** For Division 2 and Zone 2 applications, install the system in an enclosure rated to at least IP54 as defined by IEC/EN 60079-15.


 **Caution** The USB port requires a locking USB cable (part number 198506-01, 1 m, included in kit, or 780534-01, 2 m, available from ni.com) for hazardous locations. The USB cable must be used in a conduit or cable gland to wire to a nonhazardous location. Do not disconnect the cable unless the NI cDAQ-9171 is powered off or the area is known to be nonhazardous.


Special Conditions for Hazardous Locations Use in Europe and Internationally

The NI cDAQ-9171 has been evaluated as Ex nA IIC T4 Gc equipment under DEMKO 12 ATEX 1202658X and is IECEx UL 14.0089X certified. Each device is marked  II 3G and is suitable for use in Zone 2 hazardous locations, in ambient temperatures of $-20\text{ °C} \leq T_a \leq 55\text{ °C}$.


 **Caution** You must make sure that transient disturbances do not exceed 140% of the rated voltage.


 **Caution** The system shall only be used in an area of not more than Pollution Degree 2, as defined in IEC/EN 60664-1.


 **Caution** The system shall be mounted in an ATEX/IECEx-certified enclosure with a minimum ingress protection rating of at least IP54 as defined in IEC/EN 60079-15.

 **Caution** The enclosure must have a door or cover accessible only by the use of a tool.

Power Requirements

 **Caution** The protection provided by the NI cDAQ-9171 chassis can be impaired if it is used in a manner not described in the *NI cDAQ-9171/9174/9178 User Manual*.

 **Note** Some C Series modules have additional power requirements. For more information about C Series module power requirements, refer to the documentation for each C Series module.

 **Note** Sleep mode for C Series modules is not supported in the NI cDAQ-9171.

Power consumption from USB

5 V, 500 mA maximum

USB Connector Characteristics

USB connector securement


USB securement type	Jackscrew provided on locking USB cable (part number 198506-01 or 780534-01)
Torque for jackscrew	0.41 N · m (3.6 lb · in.)

Preparing the Environment

Ensure that the environment you are using the NI cDAQ-9171 in meets the following specifications.

Operating temperature (IEC-60068-2-1 and IEC-60068-2-2)	-20 °C to 55 °C
Pollution Degree (IEC 60664)	2
Maximum altitude	5,000 m

Indoor use only.


 **Note** Refer to the *NI cDAQ-9171 Specifications* for complete specifications.


Electromagnetic Compatibility Guidelines


This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) stated in the product specifications. These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.


This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by National Instruments could void your authority to operate it under your local regulatory rules.

 **Caution** To ensure the specified EMC performance, operate this product only with shielded cables and accessories.


 **Caution** This product may become more sensitive to electromagnetic disturbances in the operational environment when test leads are attached or when connected to a test object.

 **Caution** Emissions that exceed the regulatory requirements may occur when this product is connected to a test object.

 **Caution** Changes or modifications not expressly approved by National Instruments could void the user's authority to operate the hardware under the local regulatory rules.

Special Conditions for Marine Applications

Some products are Lloyd's Register (LR) Type Approved for marine (shipboard) applications. To verify Lloyd's Register certification for a product, visit ni.com/certification and search for the LR certificate, or look for the Lloyd's Register mark on the product.

 **Caution** In order to meet the EMC requirements for marine applications, install the product in a shielded enclosure with shielded and/or filtered power and input/output ports. In addition, take precautions when designing, selecting, and installing measurement probes and cables to ensure that the desired EMC performance is attained.

Where to Go Next

The following documents contain information that you may find helpful as you use this document:

- *NI cDAQ-9171/9174/9178 User Manual*
- *NI cDAQ-9171 Specifications*

Worldwide Support and Services

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