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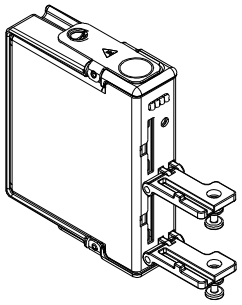
OPERATING INSTRUCTIONS AND SPECIFICATIONS

NI 9802

2 SD Card Memory Module

Français Deutsch 日本語 한국어 简体中文

ni.com/manuals



NATIONAL INSTRUMENTS

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This document describes how to use the National Instruments 9802 and includes specifications for the NI 9802. Visit `ni.com/info` and enter `rdsoftwareversion` to determine which software you need for the modules you are using. For information about installing, configuring, and programming the system, refer to the system documentation. Visit `ni.com/info` and enter `cseriesdoc` for information about C Series documentation.

Note The NI 9802 is supported only in CompactRIO reconfigurable chassis, such as the cRIO-910*x*, and Single-Board RIO devices.

Note The safety guidelines and specifications in this document are specific to the NI 9802. The other components in the system might not meet the same safety ratings and specifications. Refer to the documentation for each component in the system to determine the safety ratings and specifications for the entire system. Visit `ni.com/info` and enter `cseriesdoc` for information about C Series documentation.

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Safety Guidelines

Operate the NI 9802 only as described in these operating instructions.



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 9802 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 9802 in a potentially explosive environment. Not following these guidelines may result in serious injury or death.



Caution Do *not* insert or remove SD Cards 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.

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

Caution For Zone 2 applications, install the system in an enclosure rated to at least IP 54 as defined by IEC 60529 and EN 60529.

Special Conditions for Hazardous Locations Use in Europe

This equipment has been evaluated as Ex nA IIC T4 equipment under DEMKO Certificate No. 07 ATEX 0626664X. Each module is marked Ex II 3G and is suitable for use in Zone 2 hazardous locations, in ambient temperatures of –40 °C ≤ Ta ≤ 70 °C. If you are using the NI 9802 in Gas Group IIC hazardous locations, you must use the device in an NI chassis that has been evaluated as Ex nC IIC T4, EEx nC IIC T4, Ex nA IIC T4, or Ex nL IIC T4 equipment.

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Special Conditions for Marine Applications

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

Caution To meet radio frequency emission requirements for marine applications, use shielded cables and install the system in a metal enclosure. Suppression ferrites must be installed on power supply inputs near power entries to modules and controllers. Power supply and module cables must be separated on opposite sides of the enclosure and must enter and exit through opposing enclosure walls.

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Inserting and Removing SD Cards

The NI 9802 is an SD Card storage module that can read from and write to SD Cards. The NI 9802 has two SD Card slots into which you can insert NI-approved SD Cards.

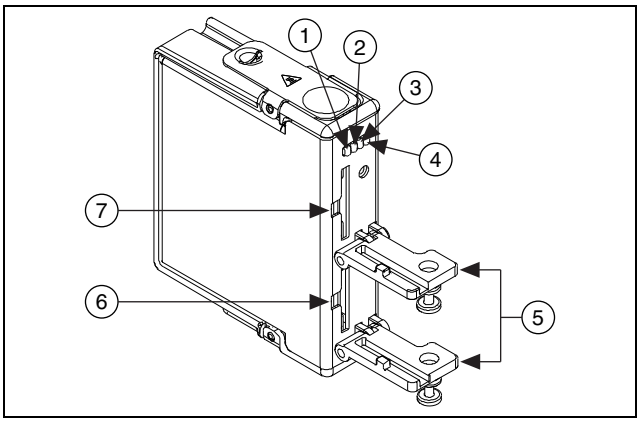
Note Using SD Cards that are not approved by NI might invalidate specifications and result in unreliable performance.

Note The NI 9802 supports only SD Cards formatted in FAT16.

The card slots each have a door to protect the SD Cards while in the module. Each door is connected to a switch that indicates to the NI 9802 software when it is safe to read from or write to the SD Card.

The NI 9802 has four LEDs that indicate which slots contain an SD Card and if the SD Card is active. Refer to Figure 1 for the designation of SD Card slots and LEDs. Refer to Table 1 for descriptions of each of the LEDs on the NI 9802 and when it is safe to remove SD Cards from the NI 9802.

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1	Present (Card 0)	4	Busy (Card 1)	6	SD Card Slot 1
2	Busy (Card 0)	5	Card Slot Doors	7	SD Card Slot 0
3	Present (Card 1)				

Figure 1. NI 9802 Card Slots and LEDs

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LEDs

Table 1. LED Descriptions

LED	SD Card Slot	Description
Present (Card 0), Green	SD Card Slot 0	This LED is lit when an SD Card is in Slot 0 and the SD Card slot door is closed.
Busy (Card 0), Yellow	SD Card Slot 0	This LED is lit when the card in Slot 0 is active. This LED is flashing when the NI 9802 is performing I/O on the card in Slot 0. Do *not* remove the SD Card while this LED is lit or flashing.
Present (Card 1), Green	SD Card Slot 1	This LED is lit when an SD Card is in Slot 1 and the SD Card slot door is closed.
Busy (Card 1), Yellow	SD Card Slot 1	This LED is lit when the card in Slot 1 is active. This LED is flashing when the NI 9802 is performing I/O on the card in Slot 1. Do *not* remove the SD Card while this LED is lit or flashing.

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SD Card Slot Doors

Do not open an SD Card slot door or remove an SD Card while the yellow LED for that card is lit or flashing. If you open an SD Card slot door while the yellow LED for that card is lit or flashing, the NI 9802 software acts to protect the file system of the SD Card. Refer to the software help for more information. Visit `ni.com/info` and enter `cseriesdoc` for information about C Series documentation.

Caution Opening an SD Card slot door or removing an SD Card while the yellow LED for that card is lit or flashing might result in incomplete or lost data.

You must close the slot door for the NI 9802 software to read from or write to the SD Card.

Note Screw the slot doors closed completely using a #1 Phillips screwdriver. Do not overtighten.

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Sleep Mode

This module supports a low-power sleep mode. Support for sleep mode at the system level depends on the chassis that the module is plugged into. Refer to the chassis manual for information about support for sleep mode. If the chassis supports sleep mode, refer to the software help for information about enabling sleep mode. Visit `ni.com/info` and enter `cseriesdoc` for information about C Series documentation.

Caution Do *not* enable sleep mode while either of the SD Card yellow LEDs are lit or flashing. Enabling sleep mode while either of the SD Card yellow LEDs are lit or flashing might result in incomplete data.

Typically, when a system is in sleep mode, you cannot communicate with the modules. In sleep mode, the system consumes minimal power and may dissipate less heat than it does in normal mode. Refer to the *Specifications* section for more information about power consumption.

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Specifications

The following specifications are typical for the range –40 to 70 °C unless otherwise noted. Certification standards for some specifications vary based on the system in which you use the module.

Data Storage Characteristics

Number of SD Cards	2
Storage	2 GB max storage for each SD Card
Data transfer	2 MB/s read/write for one SD Card at a time
MTBF	2,106,312 hours at 25 °C; Bellcore Issue 2, Method 1, Case 3, Limited Part Stress Method

Note Contact NI for Bellcore MTBF specifications at other temperatures or for MIL-HDBK-217F specifications.

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Power Requirements

Power consumption from chassis

Active mode ..... 400 mW max

Sleep mode ..... 5 mW max

Physical Characteristics

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

Note For two-dimensional drawings and three-dimensional models of the C Series module and connectors, visit `ni.com/dimensions` and search by module number.

Weight ..... 147 g (5.2 oz) without SD Cards

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Safety

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

Safety Standards

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

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1

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

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

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CE Compliance CE

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

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

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`, search by module number or product line, and click the appropriate link in the Certification column.

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Shock and Vibration

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

Operating vibration

Random (IEC 60068-2-64)..... 5 g_{rms}, 10 to 500 Hz

Sinusoidal (IEC 60068-2-6) ..... 5 g, 10 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

Environmental

National Instruments C Series modules are intended for indoor use only but may be used outdoors if installed in a suitable enclosure. Refer to the manual for the chassis you are using for more information about meeting these specifications.

Operating temperature
(IEC 60068-2-1, IEC 60068-2-2) ..... –40 to 70 °C

Storage temperature
(IEC 60068-2-1, IEC 60068-2-2) ..... –40 to 85 °C

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Ingress protection..... IP 40[1]

Operating humidity
(IEC 60068-2-56)..... 10 to 90% RH, noncondensing

Storage humidity
(IEC 60068-2-56)..... 5 to 95% RH, noncondensing

Maximum altitude..... 2,000 m

Pollution Degree 2

Environmental Management

National Instruments 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.

[1] When two SD Cards are inserted and both SD Card slot doors are closed.

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For additional environmental information, refer to the *NI and the Environment* 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)



EU Customers At the end of the life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit ni.com/environment/weee.

电子信息产品污染控制管理办法 （中国 RoHS）



中国客户 National Instruments 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 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。 (For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

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Where to Go for Support

The National Instruments Web site is your complete resource for technical support. At `ni.com/support` you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

National Instruments corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. National Instruments also has offices located around the world to help address your support needs. For telephone support in the United States, create your service request at `ni.com/support` and follow the calling instructions or dial 512 795 8248. For telephone support outside the United States, contact your local branch office:

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Canada 800 433 3488, China 86 21 5050 9800,
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Norway 47 (0) 66 90 76 60, Poland 48 22 328 90 10,
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Singapore 1800 226 5886, Slovenia 386 3 425 42 00,
South Africa 27 0 11 805 8197, Spain 34 91 640 0085,
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Turkey 90 212 279 3031, United Kingdom 44 (0) 1635 523545

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