

NI 9218/9219

NI 9218: 51.2 kS/s/ch, 2-Channel C Series Universal Analog Input Module

NI 9219: 100 S/s/channel, 4-Channel C Series Universal Analog Input Module

Physical Characteristics

Weight

NI 9218 with DSUB	151 g (5.33 oz)
NI 9218 with LEMO	165 g (5.82 oz)
NI 9219 with push-in spring terminal	160 g (5.6 oz.)
NI 9219 with spring terminal	156 g (5.5 oz.)

Dimensions

Visit ni.com/dimensions and search by module number.



Note Some NI C Series modules offer two types of spring terminal connectors: push-in spring terminal and spring terminal. The black/orange push-in spring terminal connectors do not require a tool for signal connection; push the wire into the terminal when using solid wire or stranded wire with a ferrule, or by pressing the push button when using stranded wire without a ferrule. The black spring terminal connectors require a flathead screwdriver with a 2.3 mm × 1.0 mm (0.09 in. × 0.04 in.) blade for signal connection; insert the screwdriver into a spring clamp activation slot to open the corresponding connector terminal, press a wire into the open connector terminal, and then remove the screwdriver from the activation slot to clamp the wire into place.

NI 9218 (NI 998x)

Refer to the *NI 9218 Getting Started Guide* for information about the NI 998x measurement adapters.

Screw-terminal wiring

Gauge	0.05 mm ² (30 AWG) to 1.31 mm ² (16 AWG) copper conductor wire
Wire strip length	6 mm (0.236 in.) of insulation stripped from the end
Temperature rating	80 °C minimum
Wires per screw terminal	One or two wires per screw terminal
Ferrules, single wire	0.25 mm ² (20 AWG) to 0.52 mm ² (24 AWG)
Torque for screw terminals	0.2 N · m to 0.25 N · m (1.77 lb · in. to 2.21 lb · in.)

Wire securement

NI 998xD, NI 998xL securement type	Three collets provided (ranging from 2.2 mm to 5.2 mm in diameter)
Torque for collet nut	1.5 N · m (13.3 lb · in.)
NI 998xF securement type	Zip tie provided

NI 998xD and NI 998xF connector securement

Securement type	Jackscrews provided
Jackscrew torque	0.4 N · m (3.6 in · lb)

Weight

NI 998xD, NI 998xL	142 g (5.0 oz) with cable
NI 998xF	34 g (1.2 oz)

NI 9219 with Push-In Spring Terminal (Black/Orange Connector)

Spring terminal wiring

Gauge	0.14 mm ² to 1.5 mm ² (26 AWG to 16 AWG) copper conductor wire
Wire strip length	10 mm (0.394 in.) of insulation stripped from the end
Temperature rating	90 °C, minimum
Wires per spring terminal	One wire per spring terminal; two wires per spring terminal using a 2-wire ferrule

Ferrules

Single ferrule, uninsulated	0.14 mm ² to 1.5 mm ² (26 AWG to 16 AWG) 10 mm barrel length
Single ferrule, insulated	0.14 mm ² to 1.0 mm ² (26 AWG to 18 AWG) 12 mm barrel length
Two-wire ferrule, insulated	2x 0.34 mm ² (2x 22 AWG) 12 mm barrel length

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.80 lb · in.)

NI 9219 with Spring Terminal (Black Connector)

Spring terminal wiring

Gauge	0.08 mm ² to 1.0 mm ² (28 AWG to 18 AWG) copper conductor wire
Wire strip length	7 mm (0.28 in.) of insulation stripped from the end
Temperature rating	90 °C, minimum
Wires per spring terminal	One wire per spring terminal

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.80 lb · in.)

Environmental

Temperature

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

Ingress protection

IP40

Humidity

Operating	10% RH to 90% RH, noncondensing
Storage	5% RH to 95% RH, noncondensing

Pollution Degree

2

Maximum altitude

NI 9218	5,000 m
NI 9219	2,000 m

Indoor use only.



Note Refer to the *NI 9218 Getting Started Guide* for information about the NI 998x measurement adapters.

Hazardous Locations

Explosive atmospheres rating	Ex nA IIC T4 Gc
CCC certificate number	2021312310000312

Safety Guidelines

Operate the product only as described in this document.



Caution This icon denotes a caution, which advises you to consult documentation where this symbol is marked.



Caution Do not operate this product 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.



Hazardous Voltage This icon denotes a warning advising you to take precautions to avoid electrical shock with the product.

Safety Guidelines for Hazardous Voltages (Spring Terminal Products)

If hazardous voltages are connected to the device, take the following precautions. A hazardous voltage is a voltage greater than 42.4 Vpk voltage or 60 VDC to earth ground.

You may connect signals which may be floating at hazardous voltages only to the products with screw terminal or spring terminal connectors. Do not connect signals which may be floating at hazardous voltages to the products with DSUB or LEMO connectors.



Caution Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.



Caution All wiring must be insulated for the highest voltage used.



Caution Do not mix hazardous voltage circuits and human-accessible circuits on the same module.



Caution Ensure that devices and circuits connected to the module are properly insulated from human contact.



Caution (NI 9219) You must use the NI 9972 connector backshell kit to ensure that the terminals are not accessible.

Safety Guidelines for Hazardous Locations

These products have been evaluated as Ex nA IIC T4 Gc equipment and are CCC certified. Each product is suitable for use within ambient temperatures of $-40\text{ °C} \leq T_a \leq 70\text{ °C}$ in either nonhazardous locations or Zone 2 hazardous locations. If you are using the products in Gas Group IIC hazardous locations, you must use the device in an NI chassis that has been evaluated as Ex nA IIC T4 Gc equipment.

Follow these guidelines if you are installing the product 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 Zone 2.



Caution Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value of 85 V at the supply terminals to the equipment.



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 a CCC-certified enclosure with a minimum ingress protection rating of at least IP54 as defined in GB3836.1.



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

Safety Voltages

NI 9218 with LEMO

Connect only voltages that are within the following limits:

Maximum voltage, from any pin to any pin on a single connector ¹	±30 V
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V _{sup} supply rating for sensor excitation	9 V DC to 30 V DC
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Isolation

Channel-to-channel, channel-to-V_{sup}, channel-to-earth, V_{sup}-to-earth (up to 5,000 m)²

Continuous	60 V DC, Measurement Category I
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Withstand	1,000 V RMS, verified by a 5 s dielectric withstand test
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Caution Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

NI 9218 with DSUB

Connect only voltages that are within the following limits:

Maximum voltage, from any pin to any pin on a single connector ³	±30 V
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V _{sup} supply rating for sensor excitation	9 V DC to 30 V DC
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Isolation

Channel-to-channel, channel-to-V_{sup} inputs (up to 5,000 m)

Continuous	60 V DC, Measurement Category I
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Withstand	1,000 V RMS, verified by a 5 s dielectric withstand test
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Channel-to-earth ground (up to 3,000 m)

Continuous	60 V DC, Measurement Category I
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Withstand	1,000 V RMS, verified by a 5 s dielectric withstand test
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¹ The maximum voltage between pin 2 and pin 3 on a single connector is -20 V to +30 V.

² Must use crimp contact LEMO plug (784162-01) to maintain these ratings. Ratings are invalidated if solder version is used.

³ The maximum voltage between pin 2 and pin 3 on a single connector is -20 V to +30 V.

Channel-to-earth ground (up to 5,000 m)

Continuous	60 V DC, Measurement Category I
Withstand	860 V RMS

Vsup inputs-to-earth ground (up to 5,000 m)

Continuous	60 V DC, Measurement Category I
Withstand	1,000 V RMS, verified by a 5 s dielectric withstand test



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

NI 9219 with Push-In Spring Terminal (Black/Orange Connector)

Connect only voltages that are within the following limits:

Maximum measurement voltage

Channel-to-COM	±60 V
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Isolation

Channel-to-channel

Continuous	250 V AC, Measurement Category II
Withstand	1,500 V AC, verified by a 5 s dielectric withstand test

Channel-to-earth ground

Continuous	250 V AC, Measurement Category II
Withstand	3,000 V AC, verified by a 5 s dielectric withstand test

Zone 2 hazardous locations applications

Channel-to-channel and channel-to-earth ground	60 V DC, Measurement Category I
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Caution When using the product in explosive atmospheres, do not connect to signals or use for measurements within Measurement Categories II, III, or IV.



Caution If using in nonhazardous locations, do not connect the product to signals or use for measurements within Measurement Categories III or IV.

NI 9219 with Spring Terminal (Black Connector)

Connect only voltages that are within the following limits:

Maximum measurement voltage

Channel-to-COM	±60 V
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Channel-to-channel

Continuous	250 V AC, Measurement Category II
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Withstand	1,390 V AC, verified by a 5 s dielectric withstand test
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Channel-to-earth ground

Continuous	250 V AC, Measurement Category II
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Withstand	2,300 V AC, verified by a 5 s dielectric withstand test
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Zone 2 hazardous locations applications

Channel-to-channel and channel-to-earth ground	60 V DC, Measurement Category I
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Caution If using in Zone 2 hazardous locations applications, do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.



Caution If using in nonhazardous locations, do not connect the product to signals or use for measurements within Measurement Categories III or IV.

Installing C Series Modules

Verify that power is not connected to the I/O connector(s) on the C Series module.

Removing C Series Modules

Verify that power is not connected to the I/O connector(s) on the C Series module before you remove a module from the chassis.

Safety Compliance 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
- IEC 60079-0: Ed 6, IEC 60079-15; Ed 4
- GB3836.1, GB3836.8



Note For safety certifications, refer to the product label or the [Product Certifications and Declarations](#) section.

Product Certifications and Declarations

To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Worldwide Support and Services

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504, USA.

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