

NI 9201/9202/9205/9206/9209/ 9215/9220/9221/9222/9223/ 9224/9228/9229/9238/9239/ 9251/9252

NI 9201: ± 10 V, 500 kS/s, 12-Bit, 8-Channel C Series Voltage Input Module

NI 9202: ± 10 V, 10 kS/s, 24-Bit, 16-Channel C Series Voltage Input Module

NI 9205: ± 10 V, 250 kS/s, 16-Bit, 32-Channel C Series Voltage Input Module

NI 9206: ± 10 V, 250 kS/s, 16-Bit, 32-Channel, 60 VDC Isolation C Series Voltage Input Module

NI 9209: ± 10 V, 500 S/s, 16-Channel C Series Voltage Input Module

NI 9215: ± 10 V, 100 kS/s/ch, 16-Bit, Simultaneous Input, 4-Channel C Series Voltage Input Module

NI 9220: ± 10 V, 100 kS/s/ch, 16-Bit, Simultaneous Input, 16-Channel C Series Voltage Input Module

NI 9221: ± 60 V, 800 kS/s, 12-Bit, 8-Channel C Series Voltage Input Module

NI 9222: ± 10 V, 500 kS/s/ch, 16-Bit, Simultaneous Input, 4-Channel C Series Voltage Input Module

NI 9223: ± 10 V, 1 MS/s, 16-Bit, Simultaneous Input, 4-Channel C Series Voltage Input Module

NI 9224: ± 10 V, 1 kS/s/ch, 24-Bit, Simultaneous Input, 8-Channel C Series Voltage Input Module

NI 9228: ± 60 V, 1 kS/s/ch, 24-Bit, Simultaneous Input, 8-Channel C Series Voltage Input Module

NI 9229: ± 60 V, 50 kS/s/ch, 24-Bit, Simultaneous Input, 4-Channel C Series Voltage Module

NI 9238: ± 500 mV, 50 kS/s/ch, 24-Bit, Simultaneous Input, 4-Channel C Series Voltage Input Module

NI 9239: ± 10 V, 50 kS/s/ch, 24-Bit, Simultaneous Input, 4-Channel C Series Voltage Input Module



NI 9251: 3 Vrms, 102.4 kS/s/ch Simultaneous, 2-Channel C Series Voltage Input Module

NI 9252: ± 10 V, 50 kS/s/ch, 24-Bit, 8-Channel C Series Voltage Input Module

Physical Characteristics

Weight

NI 9201 with Screw Terminal	165 g (5.8 oz)
NI 9201 with Spring Terminal	152 g (5.4 oz)
NI 9201 with DSUB	142 g (5.0 oz)
NI 9202 with Spring Terminal	138.6 g (4.9 oz)
NI 9202 with DSUB	149 g (5.3 oz)
NI 9205 with Push-In Spring Terminal	163 g (5.7 oz)
NI 9205 with Spring Terminal	158 g (5.8 oz)
NI 9205 with DSUB	148 g (5.3 oz)
NI 9206 with Spring Terminal	158 g (5.8 oz)
NI 9209 with Spring Terminal	159 g (5.6 oz)
NI 9209 with DSUB	144 g (5.1 oz)
NI 9215 with Screw Terminal	150 g (5.3 oz)
NI 9215 with Spring Terminal	138 g (4.9 oz)
NI 9215 with BNC	173 g (6.1 oz)
NI 9220 with Push-In Spring Terminal	148 g (5.2 oz)
NI 9220 with Spring Terminal	143 g (5.0 oz)
NI 9220 with DSUB	147 g (5.2 oz)
NI 9221 with Screw Terminal	165 g (5.8 oz)
NI 9221 with Spring Terminal	152 g (5.4 oz)
NI 9221 with DSUB	142 g (5.0 oz)
NI 9222 with Screw Terminal	138 g (4.9 oz)
NI 9222 with BNC	165 g (5.8 oz)
NI 9223 with Screw Terminal	138 g (4.9 oz)
NI 9223 with BNC	165 g (5.8 oz)
NI 9224 with Screw Terminal	152 g (5.36 oz)
NI 9228 with Screw Terminal	152 g (5.36 oz)

NI 9229 with Screw Terminal	147 g (5.2 oz)
NI 9229 with BNC	169 g (6.0 oz)
NI 9238 with Screw Terminal	146 g (5.15 oz)
NI 9239 with Screw Terminal	147 g (5.2 oz)
NI 9239 with BNC	169 g (6.0 oz)
NI 9251 with mini XLR	140 g (4.9 oz)
NI 9252 with Screw Terminal	134 g (4.7 oz)
NI 9252 with DSUB	149 g (5.3 oz)

Dimensions [Visit *ni.com/dimensions*](https://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 9201 with Screw Terminal, NI 9215 with Screw Terminal, NI 9221 with Screw Terminal

Screw-terminal wiring

Gauge	0.2 mm ² to 2.5 mm ² (30 AWG to 12 AWG) copper conductor wire
Wire strip length	13 mm (0.51 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Torque for screw terminals	0.5 N · m to 0.6 N · m (4.4 lb · in. to 5.3 lb · in.)
Wires per screw terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.25 mm ² to 2.5 mm ²

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9201 with Spring Terminal, NI 9215 with Spring Terminal, NI 9221 with Spring Terminal

Spring-terminal wiring

Gauge	0.2 mm ² to 2.5 mm ² (26 AWG to 14 AWG) copper conductor wire
Wire strip length	10 mm (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per spring terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.25 mm ² to 2.5 mm ²

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9202 with Spring Terminal

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 (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per spring terminal	One wire per screw terminal; two wires per screw 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 1.5 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 (1.8 lb · in.)

NI 9205 with Push-In Spring Terminal, NI 9220 with Push-In Spring Terminal (Black/Orange Connector)

Spring-terminal wiring

Gauge	0.13 mm ² to 1.5 mm ² (26 AWG to 16 AWG) copper conductor wire
Wire strip length	10 mm (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per spring terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.14 mm ² to 1.5 mm ²

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9205 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.)

NI 9206 with Spring Terminal

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 screw terminal

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9209 with Spring Terminal

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 (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per spring terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.14 mm ² to 1.5 mm ² (26 AWG to 16 AWG) 10 mm barrel length

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9220 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 (0.39 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Wires per spring terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.14 mm ² to 1.5 mm ²

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9222 with Screw Terminal, NI 9223 with Screw Terminal, NI 9224 with Screw Terminal, NI 9228 with Screw Terminal, NI 9229 with Screw Terminal, NI 9238 with Screw Terminal, NI 9239 with Screw Terminal

Screw-terminal wiring

Gauge	0.05 mm ² to 1.5 mm ² (30 AWG to 14 AWG) copper conductor wire
Wire strip length	6 mm (0.24 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Torque for screw terminals	0.22 N · m to 0.25 N · m (1.95 lb · in. to 2.21 lb · in.)
Wires per screw terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.25 mm ² to 1.5 mm ²

Connector securement

Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.8 lb · in.)

NI 9252 with Screw Terminal

Screw-terminal wiring

Gauge	0.05 mm ² to 0.82 mm ² (30 AWG to 18 AWG) copper conductor wire
Wire strip length	5 mm to 6 mm (0.20 in. to 0.24 in.) of insulation stripped from the end
Temperature rating	90 °C minimum
Torque for screw terminals	0.20 N · m to 0.25 N · m (1.8 lb · in. to 2.2 lb · in.)
Wires per screw terminal	One wire per screw terminal; two wires per screw terminal using a 2-wire ferrule
Ferrules	0.25 mm ² to 1.0 mm ²

Connector securement

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

Environmental

Temperature

Operating	-40 °C to 70 °C
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Storage	-40 °C to 85 °C
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Ingress protection	IP40
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Humidity

Operating	10% RH to 90% RH, noncondensing
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Storage	5% RH to 95% RH, noncondensing
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Pollution Degree	2
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Maximum altitude

NI 9201	2,000 m
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NI 9202	5,000 m
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NI 9205	5,000 m
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NI 9206	2,000 m
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NI 9209	5,000 m
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NI 9215	2,000 m
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NI 9220 with push-in spring terminal	4,000 m
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NI 9220 with spring terminal	2,000 m
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NI 9220 with DSUB	2,000 m
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NI 9221	2,000 m
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NI 9222	5,000 m
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NI 9223	5,000 m
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NI 9224	5,000 m
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NI 9228	5,000 m
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NI 9229	2,000 m
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NI 9238	5,000 m
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NI 9239	2,000 m
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NI 9251	5,000 m
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NI 9252	5,000 m
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Indoor use only.

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 (Screw Terminal and 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, BNC, or mini XLR 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 9201/9215/9221) You must use the NI 9927 connector backshell kit with the product with screw terminal and the NI 9981 connector backshell kit with the product with spring terminal to ensure that the terminals are not accessible.



Caution (NI 9202/9205/9209/9220) You must use the NI 9940 connector backshell kit with the product with spring terminal to ensure that the terminals are not accessible.



Caution (NI 9206) You must use the NI 9941 connector backshell kit with the product with spring terminal to ensure that the terminals are not accessible.



Caution (NI 9224/9228) You must use the NI 9939 connector backshell kit with the product with screw terminal to ensure that the terminals are not accessible.



Caution (NI 9229/9238/9239) You must use the NI 9971 connector backshell kit with the product with screw terminal 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 $-40\text{ }^{\circ}\text{C} \leq T_a \leq 70\text{ }^{\circ}\text{C}$ 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 for all modules that is set at a level not exceeding 140% of the peak rated voltage value of 85 V Channel-to-COM at the supply terminals.



Caution For modules with maximum 60 V DC Channel-to-Earth Ground isolation, transient protection shall additionally be provided that is set at a level not exceeding 140% of the peak rated voltage value of 85 V Channel-to-Earth Ground at the supply terminals.



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 9201 with Screw Terminal, NI 9201 with Spring Terminal, NI 9221 with Screw Terminal, NI 9221 with Spring Terminal

Connect only voltages that are within the following limits:

Channel-to-COM	±60 V DC maximum
Channel-to-channel	None
Channel-to-earth ground	
Continuous	250 V RMS, Measurement Category II
Withstand	2,300 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 III or IV.

NI 9201 with DSUB, NI 9221 with DSUB

Connect only voltages that are within the following limits:

Channel-to-COM	±60 V DC maximum
Channel-to-channel	None
Channel-to-earth	
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 9202 with Spring Terminal

Connect only voltages that are within the following limits:

Maximum voltage	
Channel-to-COM	±30 V DC maximum, up to 6 channels at a time ±10.5 V DC maximum, all channels at a time

Isolation

Channel-to-channel	None
Channel-to-earth ground	
Continuous	250 V RMS, Measurement Category II
Withstand, up to 5,000 m	3,000 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 III or IV.

NI 9202 with DSUB

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±30 V DC maximum, up to 6 channels at a time ±10.5 V DC maximum, all channels at a time
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Isolation

Channel-to-channel	None
Channel-to-earth ground	
Continuous	60 V DC, Measurement Category I
Withstand, up to 2,000 m	1,000 V RMS, verified by a 5 s dielectric withstand test
Withstand, up to 5,000 m	500 V RMS



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

NI 9205 with Push-In Spring Terminal (Black/Orange Connector), NI 9220 Spring Terminal (Black Connector)

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±30 V DC
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous	250 V RMS, Measurement Category II
Withstand up to 5,000 m	3,000 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 III or IV.

NI 9205 with Spring Terminal (Black Connector)

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±30 V DC
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous	250 V RMS, Measurement Category II
Withstand	2,300 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 III or IV.

NI 9205 with DSUB

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±30 V DC
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous	60 V DC, Measurement Category I
Withstand, up to 2,000 m	1,000 V RMS, verified by a 5 s dielectric withstand test
Withstand, up to 5,000 m	500 V RMS



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

NI 9206

Connect only voltages that are within the following limits:

Maximum voltage¹

Channel-to-COM	±30 V DC
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous	400 V DC, Measurement Category I
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Withstand	2,500 V PK, 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 9209 with Spring Terminal

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.2 V DC maximum
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous	250 V RMS, Measurement Category II
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Withstand up to 5,000 m	3,000 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 III or IV.

NI 9209 with DSUB

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.2 V DC maximum
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Isolation

Channel-to-channel	None
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¹ Overvoltage rating for AI channels 0 to 31, one channel only, AI SENSE, and DIO.

Channel-to-earth ground

Continuous	60 V DC, Measurement Category I
Withstand	1,000 V RMS up to 3000 m, verified by a 5 s dielectric withstand test; 860 V RMS up to 5000 m



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

NI 9215 with Screw Terminal, NI 9215 with Spring Terminal

Connect only voltages that are within the following limits:

Channel-to-COM ± 30 V maximum

Isolation

Channel-to-channel	None
Channel-to-earth ground	
Continuous	250 V RMS, Measurement Category II
Withstand	2,300 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 III or IV.

NI 9215 with BNC

Connect only voltages that are within the following limits:

AI+-to-AI- ± 30 V maximum

Isolation

Channel-to-channel	None
Channel-to-earth ground	
Continuous	60 VDC, Measurement Category I
Withstand	1,500 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 9220 with Push-In Spring Terminal (Black/Orange Connector)

Connect only voltages that are within the following limits:

Maximum voltage	
Channel-to-COM	±30 V DC maximum
Channel-to-channel	None
Channel-to-earth ground	
Continuous	250 V RMS, Measurement Category II
Withstand up to 4,000 m	3,000 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 III or IV.

NI 9220 with DSUB

Connect only voltages that are within the following limits:

Channel-to-COM	±30 V maximum
Isolation	
Channel-to-COM	None
Channel-to-earth ground	
Continuous	60 V DC, Measurement Category I
Withstand up to 2,000 m	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 9222, NI 9223

Connect only voltages that are within the following limits:

Maximum voltage	
Channel-to-COM	±30 V DC maximum

Isolation

Channel-to-channel	
Continuous	60 V DC, Measurement Category I
Withstand	1000 V RMS, verified by a 5 s dielectric withstand test
Channel-to-earth ground	
Continuous	60 V DC, Measurement Category I
Withstand	1000 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 9224

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.54 V DC maximum
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Overvoltage protection

AI+ to AI-	250 V RMS
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Channel-to-channel isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand, up to 2,000 m altitude	1,500 V RMS, verified by a 5 s dielectric test
Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, up to 5,000 m altitude	1,000 V RMS, verified by a 5 s dielectric test

Channel-to-earth ground isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand, up to 2,000 m altitude	3,000 V RMS, verified by a 5 s dielectric test
Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, up to 5,000 m altitude	1,000 V RMS, verified by a 5 s dielectric test



Caution If using in Zone 2 hazardous locations applications or above 2,000 m, do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.



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

NI 9228

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±63.8 V DC maximum
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Overvoltage protection

AI+ to AI-	250 V RMS
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Channel-to-channel isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand, up to 2,000 m altitude	1,500 V RMS, verified by a 5 s dielectric test
Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, up to 5,000 m altitude	1,000 V RMS, verified by a 5 s dielectric test

Channel-to-earth ground isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand, up to 2,000 m altitude	3,000 V RMS, verified by a 5 s dielectric test
Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, up to 5,000 m altitude	1,000 V RMS , verified by a 5 s dielectric test



Caution If using in Zone 2 hazardous locations applications or above 2,000 m, do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.



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

NI 9229 with Screw Terminal

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±62.64 V DC maximum
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Overvoltage protection

Channel-to-COM	±100 V DC
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Isolation

Channel-to-channel

Continuous	250 V RMS, Measurement Category II
Withstand	1,390 V, verified by a 5 s dielectric withstand test

Channel-to-earth ground

Continuous	250 V RMS, Measurement Category II
Withstand	2,300 V, verified by a 5 s dielectric withstand test
Zone 2 hazardous locations applications ²	60 V DC, Measurement Category I



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

NI 9229 with BNC

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±60 V DC maximum
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Isolation

Channel-to-channel

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

Channel-to-earth ground

Continuous	60 V DC, Measurement Category I
Withstand	1,000 V, 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 9238

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±30 V DC maximum
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² Channel-to-channel and channel-to-earth ground

Channel-to-channel isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand	1,500 V RMS, verified by a 5 s dielectric withstand test
Continuous, 2,001 m to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, 2,001 m to 5,000 m altitude	1,000 V DC

Channel-to-earth ground isolation

Continuous, up to 2,000 m altitude	250 V RMS, Measurement Category II
Withstand, up to 2,000 m altitude	3,000 V RMS, verified by a 5 s dielectric withstand test
Continuous, 2,001 m to 5,000 m altitude	60 V DC, Measurement Category I
Withstand, 2,001 m to 5,000 m altitude	1,000 V DC

Zone 2 hazardous locations applications (Channel-to-channel and channel-to-earth ground) 60 V DC, Measurement Category I



Caution If using in Zone 2 hazardous locations applications or above 2,000 m, do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.



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

NI 9239 with Screw Terminal

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.52 V DC maximum
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Overvoltage protection

Channel-to-COM	±100 V DC
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Isolation

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

Channel-to-earth ground

Continuous	250 V RMS, Measurement Category II
Withstand	2,300 V, verified by a 5 s dielectric withstand test
Zone 2 hazardous locations applications ³	60 V DC, Measurement Category I



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

NI 9239 with BNC

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.52 V DC maximum
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Overvoltage protection

Channel-to-COM	±60 V DC
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Isolation

Channel-to-channel

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

Channel-to-earth ground

Continuous	60 V DC, Measurement Category I
Withstand	1,000 V, 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.

³ Channel-to-channel and channel-to-earth ground

NI 9251 with Mini XLR

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	4.464 Vpk maximum
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Overvoltage protection

Channel-to-COM	±30 V
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Channel-to-earth ground	±30 V maximum, Measurement Category I
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Isolation

Channel-to-channel	None
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Channel-to-earth ground	None
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Caution Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

NI 9252 with Screw Terminal

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.5 V DC maximum
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous, up to 3,000 m altitude	250 V RMS, Measurement Category II
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Withstand, up to 3,000 m altitude	3,000 V RMS, verified by a 5 s dielectric withstand test
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Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
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Withstand, up to 5,000 m altitude	1,000 V RMS, verified by a 5 s dielectric withstand test
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Overvoltage protection	±30 V, between any two pins of the connector ⁴
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Caution When using the product above 3,000 m or in explosive atmospheres, do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

⁴ Up to 4 channels simultaneously.



Caution Do not connect the product to signals or use for measurements within Measurement Categories III or IV at any time.

NI 9252 with DSUB

Connect only voltages that are within the following limits:

Maximum voltage

Channel-to-COM	±10.5 V DC maximum
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Isolation

Channel-to-channel	None
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Channel-to-earth ground

Continuous, up to 3,000 m altitude	60 V DC, Measurement Category I
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Withstand, up to 3,000 m altitude	1,000 V RMS, verified by a 5 s dielectric withstand test
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Continuous, up to 5,000 m altitude	60 V DC, Measurement Category I
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Withstand, up to 5,000 m altitude	860 V RMS
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Caution Do not connect the product to signals or use for measurements within Measurement Categories II, 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

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