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NI-9253

SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

NI 9253

8 AI, ± 20 mA, 24 bit, 50 kS/s/ch Simultaneous

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Icons

- —*Notice*—Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.
- —*Caution*—Take precautions to avoid injury. Consult the model documentation for cautionary statements when you see this icon printed on the model. Cautionary statements are localized into French for compliance with Canadian requirements.
- —*Shock Warning*—Take precautions to avoid electrical shock.

Safety

-  **Caution** Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.
-  **Attention** Suivez toutes les instructions et respectez toutes les mises en garde de la documentation utilisateur. L'utilisation d'un modèle de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée. Renvoyez les modèles endommagés à NI pour réparation.
-  **Caution** The protection provided by the NI 9253 can be impaired if it is used in a manner not described in the user documentation.
-  **Attention** La protection apportée par le NI 9253 risque d'être endommagée s'il est utilisé d'une autre façon que celle décrite dans la documentation utilisateur.

Cautions for Hazardous Locations

-  **Caution** Do not disconnect the power supply wires, I/O-side wires, or connectors from the controller unless power has been switched off or the area is known to be nonhazardous.
-  **Attention** Ne déconnectez les fils d'alimentation, les fils côté E/S et les connecteurs du contrôleur que s'il est hors tension ou que vous savez que l'endroit n'est pas dangereux.
-  **Caution** Do not install or remove the device unless power has been switched off or the area is known to be nonhazardous.
-  **Attention** N'installer ou ne retirer l'appareil que s'il est hors tension ou s'il se trouve dans une zone non dangereuse.
-  **Caution** Substitution of components may impair suitability for use in explosive atmospheres.
-  **Attention** Si des composants sont substitués, le système risque de ne plus être conforme pour une utilisation dans une atmosphère explosive.
-  **Caution** The equipment shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC/EN 60079-15.
-  **Attention** L'équipement doit être installé dans un boîtier offrant un degré de protection IP54 minimum conformément à la norme IEC/EN 60079-15.
-  **Caution** Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.
-  **Attention** La protection contre les phénomènes transitoires doit être fournie à un niveau ne dépassant pas 140 % de la valeur de la tension nominale de crête aux bornes d'alimentation de l'équipement.
-  **Caution** The system shall only be used in an area of not more than Pollution Degree 2, as defined in IEC/EN 60664-1
-  **Attention** Le système ne doit être utilisé que dans des endroits ne dépassant pas le degré de pollution 2 défini dans la norme IEC/EN 60664-1.
-  **Caution** The enclosure must have a door or cover accessible only by the use of a tool.
-  **Attention** Le coffret doit disposer d'une porte ou d'un couvercle accessible uniquement à l'aide d'un outil.

Safety Guidelines for Hazardous Voltages

If hazardous voltages are connected to the device, take the following precautions. A hazardous voltage is a voltage greater than 42.4 V peak voltage or 60 V DC in DRY LOCATIONS, and 22.6 V peak or 35 V DC in WET LOCATIONS.



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



Attention S'assurer que le câblage à tension dangereuse est effectué par du personnel qualifié respectant les normes électriques locales.



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



Attention Ne pas combiner des circuits de tension dangereuse et des circuits accessibles aux personnes sur le même module.



Caution When device terminals are hazardous voltage LIVE, you must ensure that devices and circuits connected to the device are properly insulated from human contact.



Attention Lorsqu'une haute tension dangereuse est appliquée aux bornes de l'appareil, s'assurer que les appareils et les circuits auxquels il est connecté sont correctement isolés de tout contact humain.



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



Attention Tout le câblage doit être isolé pour la plus haute tension utilisée.



Notice The terminal block contains a plastic insert to prevent accidental wire contact with the metal enclosure.

Safety Guidelines for Hazardous Locations

Follow these guidelines if you are installing the device in a potentially explosive environment. The device has been evaluated as compliant with the ATEX directive and is IECEx certified. Each device is marked  II 3G and is suitable for use in Zone 2

hazardous locations, in ambient temperatures of $-40\text{ }^{\circ}\text{C} \leq T_a \leq 70\text{ }^{\circ}\text{C}$. The device is suitable for use in non-hazardous locations and the following hazardous locations.

U.S. (UL)	Class I, Division 2, Groups A, B, C, D, T4; Class I, Zone 2, AEx nA IIC T4 Gc
Canada (C-UL)	Class I, Division 2, Groups A, B, C, D, T4; Ex nA IIC T4 Gc
Europe (ATEX) and International (IECEX)	Ex nA IIC T4 Gc; DEMKO 12 ATEX 1202658X; IECEx UL 14.0089X

NI 9253 Safety Voltages

Connect only voltages that are within the following limits:

AI-to-COM and V_{sup} -to-COM	$\pm 30\text{ V DC}$ maximum
Channel-to-channel isolation	None
Channel-to-earth ground isolation ¹	
Continuous	250 V RMS, Measurement Category II
Withstand	3,000 V RMS, verified by a 5 s dielectric withstand test
Overtoltage protection	$\pm 30\text{ V}$, between any two pins of the connector ²



Caution Do not connect the NI 9253 to signals or use for measurements within Measurement Categories III or IV.



Attention Ne connectez pas le NI 9253 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure III ou IV.

Measurement Category II is for measurements performed on circuits directly connected to the electrical distribution system. This category refers to local-level electrical distribution, such as that provided by a standard wall outlet, for example, 115 V for U.S. or 230 V for Europe.

¹ Channels include V_{sup} and COM.

² Only 1 channel at a time.

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, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1
- EN 60079-0, EN 60079-15
- IEC 60079-0: Ed 6, IEC 60079-15; Ed 4
- UL 60079-0; Ed 6, UL 60079-15; Ed 4
- CSA C22.2 No. 60079-0, CSA C22.2 No. 60079-15



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

EMC 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 NI could void your authority to operate it under your local regulatory rules.

EMC Notices

Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified EMC performance.



Notice For EMC declarations and certifications, and additional information, refer to the [Product Certifications and Declarations](#) section.



Notice Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.

-  **Notice** Operate the NI 9253 with DSUB only with shielded cables and accessories.

Special Conditions for Marine Applications

Some models are approved for marine (shipboard) applications. To verify marine approval certification for a model, visit ni.com/product-certifications, search by model number, and click the appropriate link.

-  **Notice** In order to meet the EMC requirements for marine applications, install the model 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.

Electromagnetic Compatibility Standards

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** 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** 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.

Environmental Guidelines

Refer to the manual for the chassis you are using for more information about meeting these specifications.

-  **Notice** This model is intended for use in indoor applications only.

Environmental

Temperature

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

Humidity

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

Ingress protection	IP40
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Pollution Degree	2
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Maximum altitude	5,000 m
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Shock and Vibration

Operating vibration

Random	5 g RMS, 10 Hz to 500 Hz
Sinusoidal	5 g, 10 Hz to 500 Hz

Operating shock	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations
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Environmental Standards

This product meets the requirements of the following environmental standards for electrical equipment.

- IEC 60068-2-1 Cold
- IEC 60068-2-2 Dry heat
- IEC 60068-2-30 Damp heat cyclic (12 + 12h cycle)
- IEC 60068-2-64 Random operating vibration
- IEC 60068-2-6 Sinusoidal operating vibration
- IEC 60068-2-27 Operating shock



Note To verify marine approval certification for a product, refer to the product label or visit ni.com/certification and search for the certificate.

Environmental Management

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 *Commitment to 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 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）

 **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.)

Power Requirements

Power consumption from chassis

Active mode	798 mW maximum
Sleep mode	48 μ W maximum
Thermal dissipation (at 70 °C)	
Active mode	1.5 W maximum
Sleep mode	751 mW maximum

Physical Characteristics

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.)

Weight	158 g (5.6 oz)
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Maintenance

If you need to clean your device, wipe it with a dry towel.

CE Compliance

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)

Export Compliance

This model is subject to control under the U.S. Export Administration Regulations (15 CFR Part 730 et. seq.) administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) (www.bis.doc.gov) and other applicable U.S. export control laws and sanctions regulations. This model may also be subject to additional license requirements of other countries' regulations.

Additionally, this model may also require export licensing before being returned to NI. The issuance of a Return Material Authorization (RMA) by NI does not constitute export authorization. The user must comply with all applicable export laws prior to exporting or re-exporting this model. See ni.com/legal/export-compliance for more information and to request relevant import classification codes (e.g. HTS), export classification codes (e.g. ECCN), and other import/export data.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Additional Resources

Visit ni.com/manuals for more information about your model, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

Worldwide Support and Services

The NI website 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.

Visit ni.com/services for information about the services NI offers.

Visit ni.com/register to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

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