SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

sbRIO-9220

Non-Enclosed, ±10 V, 100 kS/s/ch, 16-Bit, Simultaneous Input, 16-Channel C Series Voltage Input Module

Read this document 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. Visit *ni.com/manuals* for more information about your product, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

Icons

Refer to the following descriptions if one of these icons is marked on your product or used in this guide.

Notice Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the product.

Caution Take precautions to avoid injury. Consult the product documentation for cautionary statements when you see this icon printed on the product. Cautionary statements are localized into French for compliance with Canadian requirements.

Warning Possibility of electric shock. Take precautions to avoid electrical shock.

ESD Sensitive Take precautions to avoid damaging the product with electrostatic discharge.

Safety Guidelines

Caution Observe all instructions and cautions in the user documentation. Using the product in a manner not specified can damage the product and compromise the built-in safety protection.

Attention Suivez toutes les instructions et respectez toutes les mises en garde de la documentation d'utilisation. L'utilisation du produit de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée.

Caution The product will need to be mounted in suitable Fire and Mechanical end product enclosure; Exercise caution when placing the product inside an enclosure. Auxiliary cooling may be necessary to keep the product under the maximum ambient temperature rating for the product. Refer to the product

specifications for more information about the maximum ambient temperature rating.

Attention Le produit devra être monté dans un boîtier du produit final répondant aux exigences de résistance mécanique et de protection incendie ; faites preuve de prudence lorsque vous placez le produit dans un boîtier. Un système de refroidissement auxiliaire peut être nécessaire pour maintenir le produit en dessous de sa température nominale maximale. Reportez-vous aux spécifications du produit pour obtenir plus d'informations sur la température nominale maximale.

Safety Guidelines for Hazardous Voltages

If hazardous voltages are connected to the product, take the following precautions. A hazardous voltage is a voltage greater than:

- 30 V RMS, 42.4 V peak, or 60 V DC in DRY LOCATIONS
- 16 V RMS, 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 product.

Attention Ne pas combiner des circuits avec des tensions dangereuses et des circuits accessibles aux personnes sur le même produit.

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

Attention Lorsqu'une haute tension dangereuse est appliquée aux bornes du produit, vous devez vous 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.

Safety Voltages

Isolation Voltages

Temporary Overvoltage—An overvoltage condition of a relatively long duration.

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
Temporary overvoltage protection	±30 V between any two pins

Measurement Category

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

Attention Ne pas connecter le produit à des signaux dans les catégories de mesure III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.

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.

Safety Compliance 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

Note For 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 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 The performance of this product can be disrupted if subjected to Electrostatic Discharge (ESD) during operation. To prevent damage, industry-standard ESD prevention measures must be employed during installation, maintenance, and operation.

Notice Operate this product only with shielded cables and accessories.

Notice Operate this product only inside a suitable shielded enclosure.

EMC 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

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 Europe, Australia, and New Zealand (per CISPR 11) Class A equipment is intended for use in non-residential locations.

Environmental Guidelines

Notice Failure to follow the mounting instructions in the product documentation can cause temperature derating.

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

Environmental Characteristics

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
Pollution Degree	2
Maximum altitude	4,000 m

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

Power Requirements

Power consumption from chassis (full-scale input, 100 kS/s)	
Active mode	1 W maximum
Sleep mode	4 mW maximum

Thermal dissipation (at 70 °C)	
Active mode	1.250 W maximum
Sleep mode	510 mW maximum

Physical Characteristics

Dimensions and Weight

Connector type	Spring terminal
Weight	64.4 g (2.27 oz)

Spring-Terminal Wiring Specifications

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 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.)

Export Compliance

This product 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 product may also be subject to additional license requirements of other countries' regulations.

Additionally, this product 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 product. 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.

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）

NI 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 NI 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.)

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.

NI Services

Visit *ni.com/support* to find support resources including documentation, downloads, and troubleshooting and application development self-help such as tutorials and examples.

Visit *ni.com/services* to learn about NI service offerings such as calibration options, repair, and replacement.

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

NI corporate headquarters is located at 11500 N Mopac Expwy, Austin, TX, 78759-3504, USA.

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