

SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

sbRIO-9860

Non-Enclosed, 2-Port, C Series Vehicle Multiprotocol Interface Module

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.

Safety Guidelines

- **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** Do not operate the sbRIO-9860 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.
- **Attention** Ne pas utiliser le sbRIO-9860 d'une autre façon que celle spécifiée dans ce document. Une mauvaise utilisation du produit peut s'avérer dangereuse. Si le produit est endommagé de quelque manière que ce soit, la sécurité intégrée dans le produit risque d'en être compromise. Si le produit est endommagé, le renvoyer à NI pour réparation.
- **Caution** The sbRIO-9860 will need to be mounted in suitable Fire and Mechanical end product enclosure; Exercise caution when placing the sbRIO-9860 inside an enclosure. Auxiliary cooling may be necessary to keep the device under the maximum ambient temperature rating for the sbRIO-9860. Refer to the *NI 9860 Specifications* for more information about the maximum ambient temperature rating.
- **Attention** Le sbRIO-9860 devra être monté dans un boîtier du produit final répondant aux exigences Feu et Mécanique ; faites preuve de prudence lorsque vous placez le sbRIO-9860 dans un boîtier. Un système de refroidissement auxiliaire peut être nécessaire pour maintenir l'appareil en dessous de la température nominale maximale pour le sbRIO-9860. Reportez-vous aux *Spécifications du NI 9860* pour obtenir plus d'informations sur la température nominale maximale.
- **Caution** The sbRIO-9860 is designed for non-hazardous live signals. You must ensure that all signals connected to the sbRIO-9860 are isolated from hazardous live circuits and no unsafe voltages are present at the sbRIO-9860 inputs. Voltages that exceed the specifications could result in damage to the sbRIO-9860.
- **Attention** Le sbRIO-9860 est conçu pour les signaux en direct non dangereux. Vous devez vous assurer que tous les signaux connectés au sbRIO-9860 sont isolés des circuits dangereux sous tension et qu'aucune tension dangereuse n'est présente aux entrées du sbRIO-9860. Des tensions supérieures à celles mentionnées dans les spécifications peuvent endommager le sbRIO-9860.

Safety Voltages

Connect only voltages that are below these limits.

V_{SUP} to COM	30 VDC, Measurement Category I
Chassis ground to COM	30 VDC, Measurement Category I

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as *MAINS* voltage. *MAINS* is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.

- **Caution** Do not connect the sbRIO-9860 to signals or use for measurements within Measurement Categories II, III, or IV.
- **Attention** Ne connectez pas le sbRIO-9860 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure II, III ou IV.



 **Note** Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

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 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.

 **Notice** Operate this product only with shielded cables and accessories.

 **Notice** Operate this product only inside a suitable shielded enclosure.

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; Basic 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-003: 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.

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

Physical Characteristics

Weight (unloaded)	37 g (1.3 oz)
Dimensions	74 mm × 74 mm × 17 mm (3.0 in. × 3.0 in. × 0.7 in.)

Environmental Guidelines

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

Environmental Characteristics

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

Operating Environment	
Ambient temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 70 °C
Relative humidity (IEC 60068-2-56)	10% RH to 90% RH, noncondensing
Maximum altitude	5,000 m
Pollution degree (IEC 60664)	2

Storage Environment

Ambient temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 85 °C
Relative humidity (IEC 60068-2-56)	5% RH to 95% RH, noncondensing

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.)

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.

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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