SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

SLSC-12202

60 V Digital I/O Module for SLSC

Read this document and the documents listed in the *Additional Resources* section about installation, configuration, and operation of this product 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 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.

Caution: Possibility of Electric Shock Take precautions to avoid electrical shock.

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. Return damaged products to NI for repair.

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. Renvoyez les produits endommagés à NI pour réparation.

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

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

Safety Voltages

Connect only voltages that are below these limits.

Maximum input voltage	60 V peak
Isolation	
Channel-to-channel	None
Channel-to-earth	
Maximum working voltage[1]	100 V peak
Transient overvoltage[2]	920 V peak
Overvoltage protection[3]	±100 V peak, at the front I/O and Vsup connectors

Caution If you are using the SLSC-12202 with voltages greater than 30 V RMS, 42 V peak, or 60 V DC, the SLSC chassis must be panel mounted in a closed rack to prevent user access to the rear of the device.

Attention Si vous utilisez le SLSC-12202 avec des tensions supérieures à 30 V RMS, 42 V peak, ou 60 V DC, le châssis SLSC doit être sécurisé contre les contacts. Pour cela, il est nécessaire de le monter sur panneau dans un rack fermé pour empêcher l'utilisateur d'accéder à l'arrière de l'appareil.

These test and measurement circuits are rated for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS.

[1] Working voltage rating is the highest RMS value of the AC or DC voltage across the insulation that can continuously occur when the equipment is supplied at rated voltage.
[2] The short duration overvoltage of a few milliseconds or less, oscillatory or non-oscillatory, usually highly damped.
[3] Temporary overvoltage rating is the overvoltage of relatively long duration.

MAINS is a hazardous live electrical supply system to which equipment is designed to be connected to for the purpose of powering equipment. This product is rated 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.

Current Ratings

Maximum continuous output current	
Each channel	150 mA
Sum of all channels	4.8 A

Safety Guidelines for Hazardous Voltages

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.

Warning Do not connect the SLSC-12202 to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINs circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.

Mise en garde Ne connectez pas le SLSC-12202 à des signaux dans les catégories de mesure II, III ou IV et ne l'utilisez pas pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous risque d'endommager et de compromettre l'isolation. Le produit risque de tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

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
- Conforms to UL Standard 61010-1 and UL Standard 61010-2-030
- Certified to CSA Standard C22.2 # 61010-1 and CSA Standard C22.2 # 61010-2-030

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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 Operate this product only with shielded cables and accessories.

Notice Operate this product only with cables less than 3 m in length.

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

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.

Environmental Guidelines

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

Notice To meet the shock and vibration specifications in this document, you must panel mount the system.

Environmental Characteristics

Temperature and Humidity	
Operating temperature	0 °C to 40 °C[4]
Storage temperature range	-40 °C to 85 °C
Operating relative humidity range	10% to 90%, noncondensing
Storage relative humidity range	5% to 95%, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient)

Shock and Vibration	
Operating shock	30 g peak, half-sine, 11 ms pulse
Operating vibration, random	5 Hz to 500 Hz, 0.3 g_{rms}
Non-operating vibration, random	5 Hz to 500 Hz, 2.4 g_{rms}

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*.

[4] The chassis internal ambient temperature may reach 85 °C with all slots at the maximum allowed power dissipation. In the SLSC-12001 chassis this corresponds to an external ambient of 40 °C.

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.)

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 60068-2-78 Damp heat (steady state)
- IEC 60068-2-64 Random 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.

Power Requirements

Module thermal dissipation	< 50 W
Module power consumption from backplane	12.0 W maximum
External power supply (Vsup)[5]	
Voltage range	5 V DC to 60 V DC
Maximum output current capability	1.0 A + 150 mA × Number of output channels
Power consumption under no load	20.0 W maximum

Physical Characteristics

SLSC slots	1
Dimensions	175 mm × 31 mm × 336 mm (6.89 in. × 1.19 in. × 13.21 in.)
Weight	380 g (13.4 oz)
Front I/O connectors	2x female 48-pin DIN 41612 Connector
Rear I/O connectors to the RTI-12308	1x 110-pin Hard Metric type A. 1x 6-blade Universal Power Module (UPM)

CE Compliance CE

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)
- 2015/863/EU; Restriction of Hazardous Substances (RoHS)

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.

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.

[5] The external power supply (Vsup) used must be a certified SELV power supply.

Additional Resources

Visit *ni.com/manuals* for more information about your product, 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.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504, USA. For up-to-date contact information for your location, visit *ni.com/contact*.

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